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ABSTRACT

A meeting of the North East Association for Institutional Research opens with a training session dealing with priority issues for institutional research. Following a keynote address on the future of academe, papers are presented that focus on: (1) faculty profiles in college management; (2) development and use of student-quality life indicators; (3) employer-based evaluation; (4) planning in a time of diminishing resources; (5) research on student ratings of instruction; (6) developing institutional policies to cope with budget reductions; (7) changes in personality and academic aptitude patterns in the attrition process; (8) state education agency and campus research cooperation; (9) conceptual requirements for a plan of institutional development; (10) development of an instructional activity index; (11) attendance and articulation under open admissions; and (12) admissions testing program. (Author/KE)

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COPING IN THE 70'S

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Papers from the Second Annual Meeting of the North East Association for Institutional Research

November 6, 7, and 8, 1975
New Haven, Connecticut

COPING IN THE 70'S

Papers given at the Second Annual Conference
of the
North East Association for Institutional Research
New Haven, Connecticut -- November 6, 7, 8, 1975

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PREFACE

The second annual conference of the North East Association for Institutional Research took place November 6 through 8, 1975, at the Sheraton Park Plaza Hotel, New Haven, Connecticut. Over sixty individuals from New England, New York, New Jersey, Pennsylvania and Maryland came together to discuss the theme: "Coping in the 70's". The program in great measure drew from the work of Elliot I. Mininberg who had called for the papers and had made program arrangements.

A training session was held on Thursday afternoon, the 6th, with a keynote address at dinner that evening by Dr. Stephen Dresch, Director of the Institute for Social Policies, Yale University. Contributed papers followed throughout Friday and again on Saturday morning.

We are grateful to the various speakers for supplying us with copies of their papers, tables, and figures.

We also want to thank Linda Serrell, Lois Hill, and Alexis Chapin for assisting us in preparing this report of the meeting as well as to acknowledge the assistance of Amherst College, Hampshire College, and the University of Massachusetts, Amherst.

April, 1976

Robert F. Grose, Amherst College
Daniel L. Kegan, Hampshire College
NEAIR Co-Chairpersons for Publications

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PERSPECTIVES ON PRIORITY ISSUES FOR INSTITUTIONAL RESEARCH

Richard C. Heck
Colgate University

Since Institutional Researchers are supposed to have (or be able to find) all the answers, I thought I'd take this opportunity and indulge in a little question posing session.

Basically I'm going to ask questions about five (5) areas of knowledge that I think are important to any Institutional Researchers (or Planners) at a four year liberal arts college. I ask that those of you who aren't from such institutions listen and tell me afterwards if I should have included any special questions for you. The five areas are:

Knowing yourself--

1) Many of you have just written resumes--do you believe them? Could you sit down and write a real one? How would the real one compare with the one you've been using? How do you plan to make the real one become the ideal one?

2) What about your style? Have you ever thought how you might have appeared to a hidden camera in that last affirmative action meeting? Is that the way you wanted to be seen? or heard? What miffs you? What pleases you? Do you work better one-to-one or in groups? Do you plan your meetings accordingly?

3) Do you take time to relax? Do you take time to make the people around you relax?

4) Are you using all your capabilities? Have you developed them yet?

Knowing your job (your position, your role)--

1) "That's not my job," are you prepared to say that at the right time?

2) "Yes, I'll do it." "I don't have the time." "It can't be done." Do you know when to use these words?

3) You have no choice? You do what you're told? Do you like it that way? If so, is it good for the college? If not, do you know how to change the situation?

4) Have you analyzed your position on the organizational chart? Is it right for now? Will it be right in two years? in four?

5) Have you analyzed your position on the informal organizational chart? Do you know what the Education Department thinks of your operation? Do you care?

6) Where do you go for the answers to these questions if you can't answer them.

Knowing your institution--

1) Who makes the decisions? Who really makes the decisions? Who needs the kind of information you can provide? Who asks for it? Are they the same people who need it?

2) What is the real power chart (not organization chart) of your institution? Why do your powerful people stay powerful? Do you want to get involved in the "power structure"--if not, how do you avoid it?

3) Could you sit down today and write up a mock President's staff agenda for next year? Can you do the same thing for the faculty committees? The student senate? Could you predict

now what issues the campus newspaper will be editorializing upon next year or the year after?

4) Where are the resources you need? The annual reports, past accreditation evaluations, current student data, past student data, past studies done by *ad hoc* committees, student workers temporary clerical help, special grants, etc.?

5) Who else does Institutional Research on your campus even if they don't call it that? Who else can you enlist to help do Institutional Research--even if you don't tell them it's called that?

6) Who are the people to steer away from? Who are the people to get involved? How (and why) should you distinguish between them?

7) Who are your Board of Trustees?

Know what's happening outside your institution--

1) What are the next issues your state planning board will consider? Why will they be studying them?

2) What will issues like accountability, affirmative action, consumerism, vocationalism, and statewide planning mean for your institution? and your job? What will these issues mean for the people whom you must supply reports, analyses, and research?

3) What connection do the following have with your institution and your job: the Dow Jones, the Chicago Board of Options, New York City default, the next election, the unemployment rate, and thequality of health-services delivery in your state?

4) What is on the minds of the families of your present and

future students? How about the employees of your graduates?

5) Who are your Board of Trustees?

Know how to find out what you know, and to identify what it is you don't know but need to know--and--how to learn what you need to know--

1) Have you mapped out a plan for next week? next month? year? five years? Have you articulated your objectives? Have you prepared an annual report yet? (for yourself or someone else?) Are they the same report? Should they be?

2) Why are you here? What will the folder marked "NEAIR November 6, 1975" mean to you one week after you file it away next Monday? after one year? after five years?

Now that I've asked all the questions I'd feel free to respond to any answers you have.

SERVING THE PEOPLE: UNDER-UTILIZED CLIENTS FOR INSTITUTIONAL RESEARCH*

Daniel L. Kegan
Hampshire College

Much of the discussion of Institutional Research (IR) focuses on top management as the client for IR. There are several reasons for this. One is the necessity for top management support if IR is to survive in these times of retrenchment. Another is that top management are effective clients--they often know what information they want and need, and often know how to use the services of IR offices and people. But there are other potential clients for IR. The college (or university) campus is composed of many constituencies and groups: faculty, students, residence staff, experimental academic programs, secretaries, transfer students, and many more. Although serving top management is likely to be a dominant function for many IR offices, my thesis is that the institutional researcher should devote some of his/her attention and resources to developing and serving other clients.

Why be concerned with these other, less powerful groups? There are, of course, theories advocating pluralistic participation in problem-solving and decision-making of those who are affected by the problems and decisions. But beyond such theories, there is an overwhelming practical reason: much critical data concerning colleges cannot validly be obtained without the cooperation of faculty, students, and staff.

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*Notes for and from a panel discussion, "Individual perspectives on priority issues for institutional research," North East Association for Institutional Research Annual Conference, 6 November 1975.

Further, from the viewpoints of many students and faculty, there is little reason that they should participate in many traditional institutional research studies. Unless a potential participant in a study sees some relatively short-term payoff to him/her, only acquiescence, coercion, or identification with "administrative science" are likely to impel someone to cooperate.

For some IR studies people need not cooperate and the institutional researcher can still manipulate the data. Course credit hours, faculty grade point averages, class standing, tenure, and the like are all publicly available data. Such studies of administratively generated data serve important functions for management and the well-being of the college. But other questions demand active participation and cooperation:

More proximal measures of what and how students learn;

What educational resources students find useful and which difficult to obtain;

Indicators of the quality of student life;

Real estimates of how faculty spend their working time and how things might be changed to lessen faculty overload while remaining responsible to student education and financial realities.

Such attention to multiple clients will necessitate some compromise with institutional research priorities and tasks. But, as a friend of mine (Daniel Shurman) is wont to say, if you must compromise, compromise up! Added concern with the more immediate concerns of faculty and students can support the desire of many institutional researchers to incorporate more than surrogate indices in their analyses.

More attention now needs to be paid to the educational outcomes our colleges produce. We have developed sophisticated ways of measuring and describing educational costs, but our work with outcomes or benefits is underdeveloped. In these times of hard choices, we need both cost (input) and benefit (outcome) data to validly assess worth.

We need to establish a system of regular longitudinal surveys of campus life. An institutional commitment to longitudinal institutional research yields several benefits. First, in the spirit of Don Campbell, such a system permits better evaluation of the many administrative experiments which are of necessity ongoing at any college.

Second, such longitudinal surveys permit what I'm fond of calling "post hoc, a priori" evaluations. Often in the life of any institutional researcher or evaluator he/she is approached by a group wishing an evaluation of a program already begun. Longitudinal data on criterion variables the researcher knows to be important for evaluation and decision-making can permit the rendering implausible of many rival hypotheses which grow among college evaluation efforts.

Third, students and faculty can become an additional resource for the institutional researcher. They can produce their own evaluative studies, yet gain greater explanatory power by linking their questions with the ongoing representative data of the longitudinal survey. Many students conduct small studies of aspects of the college for class or thesis projects. Devoting a small amount of time to liaison with supervising faculty and to consultation with student researchers can help the IR office broaden its perspectives and studies of the campus. Further, as students and faculty observe the helpfulness of IR people and of IR systems such as longitudinal data frameworks, IR develops a distributed network of supporters and defenders of empirical research.

There is yet another reason to devote some IR resources to developing a faculty and student clientele. Cohen and March describe the modern college as an organized anarchy, a place where there is not agreement on its goals and if there were there would still not be agreement on the means to achieve those goals. Under such conditions they suggest that institutional and personal effectiveness is enhanced if some effort is devoted toward interesting complexity, toward attractive endeavors that cannot necessarily be justified rationally but that feel like worthwhile or fun things to try.

In a changing world too rigid a focus on rationally defined goals and processes may be a liability. Some broader distribution of activities around those central themes can provide the variation that Darwin noted permitted survival and evolution. The general systems people, among others, have noted that no social system can remain a high quality, effective one by maximizing one sole objective: optimizing multiple objectives is necessary.

The main client for IR is likely to remain top administration, and much of the work of institutional researchers is likely to be further development of the kinds of work they are now doing, represented for example in the NCHEMS projects. But devoting some IR resources to developing a broader set of clients can promote a synergistic effectiveness where all clients benefit. And the institutional researcher just may feel less a dependent captive of bureaucratic hierarchy and more an entrepreneuring person more broadly recognized as working to help all the people of the college.

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A CURMUDGEON'S VIEW OF THE FUTURE OF ACADEME

Stephen P. Dresch
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When George Beatty asked me to present the keynote address to the second annual conference of the North East Association for Institutional Research, he assured my assent by noting that the role required a person of "national prominence." On reflection, however, I did have misgivings, given that prerequisite. Shortly thereafter, my fears were calmed when my former research assistant called with news that I had made Harper's magazine. Not having the experience of a Kissinger or Nixon in coping with publicity, I dashed to the library and with trembling hands found page 95 of the October issue. And there, below an ad headed "California Campus for Sale," was my national prominence, a box which said, simply:

> According to a mathematical model developed at Yale, undergraduate enrollment in the U.S. will shrink by 46 percent between 1980 and 1990.

Period. It is hard to imagine more anonymous grounds for a claim of national prominence.

There is a serious point to this anecdote. As it stands, the quotation is inaccurate, misleading, and potentially dangerous. Now, you might think that the contents of the Harper's box is so patently absurd that no one, not even a state legislator or potential alumni contributor to the Yale capital campaign, would take it seriously. I probably would have taken that position before last spring, when I received a note from W. Lewis Hyde, executive director of the Connecticut Conference of Independent Colleges, which asked only, "Are you quoted correctly?" On the attached page two of the President's Report in Response to the Governor's Request on Reducing the Scope of the University of Wisconsin System were four projections of University of Wisconsin enrollment, one of which stood out by reason of its precipitous decline, labeled, of course, "Dresch Effect." And in this case, while the projections were "in the spirit of the thesis advanced by S.P. Dresch," I have no idea how the actual numbers were derived. While he was hopefully deluded, a somewhat disturbed friend at the University of Wisconsin even blamed my influence for shifting the Governor's focus from a short-term budgetary contraction to a long-term contraction of the system.

Enough for the soul-searching of a "defunct" economist turned social demographer. Even if, in fifteen years, my more popularly-cited anticipations of the future render me definitively defunct, the fundamental concern which motivated them will still stand. That concern is the effectiveness and vitality of higher education--or more grandiously, but descriptively, of the scholarly enterprise--in a period in which we can rest assured, if nothing else, that the future will not be like the past.

First, I would like to explore the essential feature which will differentiate the intermediate future from the recent past. Most succinctly stated, the distinction is between an era of growth and an era of stability or contraction. While this change in circumstances will have pervasive social implications, its consequences for higher education will be particularly significant.

As I have indicated in the current (Autumn 1975) issue of the AAUP Bulletin, between 1929 and 1948, although the college-educated proportion of the labor force increased from 5.2% to 6.7%, on average the college educated constituted the same proportion of employment within industries in both years. And while the college educated increased even more dramatically to 12.9% of the labor force in 1969, roughly 60% of this change can also be explained by inter-industry shifts in employment. In short, the period since the 1920's, and especially since World War II, has been one of remarkable change in economic structure, and this change has been one which necessitated significant increases in educational attainments.

However, this was also a period in which the demographic environment was least conducive to major changes in adult educational attainments. The rate of increase of the college-age population slowed dramatically in the 1930's and actually became negative between 1940 and 1960.

In juxtaposition, these two phenomena, rapid economic change and a contracting college-age cohort, served to create a persistent excess demand for highly educated labor, an excess demand characterized by, first, high and sustained pecuniary rewards to college level educational attainments, and second, rapid increases in the rate of college attendance and completion.

Economists (and educators) who failed to consider these sources of change in college attendance necessarily failed to see the implications of the war and post-war increase in births, which over the very short period 1958 to 1964 served to double the population of eighteen year olds. Because the excess demand persisted (since these inflated cohorts would begin to enter the labor force only in the late 1960's and early 1970's), rates of college attendance continued to increase. When these swollen and highly educated cohorts did finally hit the streets, it would not take long to convert a situation of excess demand into one of excess supply. And just as the incentives for college entrance and completion would evaporate, the size of the college-age cohort would also contract (by almost 13% between 1980 and 1990) as a result of the post-1960 declines in fertility.

It is on these interacting demographic and economic developments, past and future, that I base my anticipations of substantial, if not 46%, enrollment declines after 1980. Now, I should indicate that there are two possible means by which these declines may be avoided, or at least deferred, especially if these two courses of action are pursued simultaneously and with sufficient vigor.

One is the perpetuation and, if possible, even the further elaboration of incompetent national economic policies. One of the major costs facing a young person deciding whether or not to stay in high school, enter college or persist in college to graduation is the earnings loss entailed by the choice of further education. And nothing more effectively reduces the cost of education than depriving young people of opportunities for employment. Even on the assumption that an average recent high school graduate, working full time, could earn only $5,000, an increase in the probability of unemployment from 10% to 20% is equivalent with respect to the absolute costs of education to giving that individual a $500 scholarship. Without being terribly reckless, current economic policies are probably conferring average "benefits" to students on the order of $500 to

$1,000 per year.

The impact of this off-the-budget, unlegislated Administration program of support for education is clearly reflected in recent dramatic increases in rates of high school completion and of college entry and retention. It should also be noted that the "desirability" of this scheme is greatly enhanced by the fact that it is need-based: the children of the poor, who face higher rates of unemployment than the children of the affluent, receive greater "benefits" from this program of implicit stipends.

Thus, the prescription for the vested interests of higher education is "advocate higher unemployment." And while this prescription may seem absurd, the signals emanating from One Dupont Circle (the national headquarters of the higher education cartel) suggest it is being followed. Increasingly, we hear about the "non-productiveness" of work, the negative value of the products of work (cars which clog streets and pollute the air, spray-cans which destroy the ozone layer, ad infinitum), and the appeal that, because of its value in and of itself, education should be considered at least as worthy as work and compensated accordingly.

The other, related technique for maintaining enrollments has just been suggested. That is, increase direct subsidies to education: Achieve and maintain zero tuition, provide higher and higher stipends to students, contingent on their being in school. Obviously, this is superior to indirect stipends through unemployment, since in the unemployment case, potential students are at least given some freedom of choice, to while away their hours on street corners or on a beach rather than in a college classroom. With direct subsidies, we can deprive them even of that limited choice.

A combination of the two techniques should constitute a guarantee of a bright future. I dwell on these possibilities because you, as members of the general staff of the higher education establishment, as courtiers of the princes of academe, will be called upon to contribute to the coming campaign. The princes will provide the Churchillian (or perhaps I should say, Brewsterian) rhetoric of principle, you the aura of practical intelligence. And, as would the general staffs and courtiers of General Motors or Gulf Oil, with complete honesty and integrity, with no intention to deceive, with full faith in the righteousness of your cause, you probably will make your contribution, in two primary forms.

One derives from what I perceive to be the traditional role of institutional research, perhaps more accurately characterized as pedagogical research and concerned with evaluating alternative modes of instruction (e.g., televised versus classroom instruction), predicting the performance of entrants and thus advising admissions policy, etc. The function here will be to demonstrate that higher education is effective: that it can compensate for inadequate elementary and secondary preparation, that marginal students (marginal especially with respect to their desire to be in attendance), bribed into the classroom, can perform adequately on standardized tests in, e.g., biology or medieval history, in short that virtually anyone brought through the portals of academe can be converted into a solid middle-class accountant or high school teacher.

You will have to contend that higher education can succeed as holder in due course of all prior failures of social policy: the failure to achieve a just distribution of income, the failure to maintain anything approximating full employment, the failure to provide even barely adequate educational competencies at the pre-college level. And here, perhaps, will be higher education's strongest suit, capitalizing on whatever residual guilt survives of the 1960's social conscience.

But there you will probably stop. You will not be asked to explore what happens when this would-be high school teacher or accountant is regurgitated by the academic processor into a labor market in which the accountant becomes the clerk, the teacher a salesman of office furniture, in which his expectations, based on the experiences of his 1960's predecessors, clash starkly with the realities of an educated labor market strangled by the clot of highly educated, slowly aging prodigies of the post-war baby-boom, a clot which will begin to be mercifully eliminated by death and the infirmities of age only after the turn of the century.

You will not be asked to explore what these beneficiaries would have done with the subsidies squandered by unemployment or constrained to education. Will they feel that they would be better off had they been given the choice of work or of other types of preparation for adult life?

And finally, you will not be asked to consider the consequences for those whom, even under the new regime, will be excluded from this pseudo-egalitarian enterprise. I will not attempt to compete with the state of this issue offered by Harry G. Johnson of the University of Chicago and the London School of Economics and Political Science:

> (it) is, I think, wrong to concede an argument for providing educational subsidies to the children of poor parents. By the time they get to the stage of university admission, they are probably already out of the poverty or deplorably unequal class. If poverty or inequality is considered a problem, one should recognize that the poorest among us, and the one most deserving of help from his fellow men, is the one whom nature forgot to endow with brains--and that the way to make it up to him is not to exclude him from school and tax him to pay part of the cost of educating his intellectually well-endowed and no-longer-poor peer group among the children of poor parents, but to give him money in lieu of the brains he lacks. Superior intelligence or skill is undoubtedly more economically useful than the absence of it, but discriminating in favor of it by fiscal subsidization will not necessarily produce a more democratic and poverty-free or egalitarian society.

Now, to change focus somewhat, the second contribution to the cause which you will be asked to make will be to demonstrate not only that higher education is educationally effective but also that it is "efficient" in the somewhat peculiar terms of the administrative scientist. And this function will become progressively more important as the general strategy of maintaining enrollments begins to fail, that is, as colleges and universities are truly required to cope for their lives and as the princes of the establishment, unable to deal with the uncertainties surrounding them, notwithstanding their rhetoric, substitute mangerial hand-waving for judgment when they face hard choices and decisions.

And here you can follow in the path of such groups as the National Center for Higher Education Management Systems and the National Commission on the Financing of Postsecondary Education. The National Commission, fortunately, left few legacies. But, it might be said, those which it did leave seem to be almost entirely of negative value. In no case is this more true than with respect to its contributions to efficiency measurement, unit costing and the like. Admittedly, the composition of the Commission virtually assured that it could make no positive contribution of substance. And an emphasis on efficiency certainly must have seemed innocent enough to a group which had to appear at least to reach some sort of consensus on something. But the consequence has been to unleash a horde of "cost effectiveness analysts" whose contribution, at best, will be to obfuscate the forces impinging upon higher education. Unable to measure, and to incorporate into their simplistic unit cost, linear programming, and optimal control models, the truly important variables altering education and its role in society, these analysts will continue to produce contemporary equivalents of Ptolemaic epicycles, analytical excesses the irrelevance of which can be useful only to support preordained conclusions.

The most serious inadequacy of this proliferating fraternity of cost effectiveness analysts is that in their assessment of efficiency in production, they have no idea what is being produced, certainly less relevant ideas than the traditional institutional researcher. With what kinds of variables are these entrepreneurs concerned? Credit hours (lower division, upper division, graduate, degree and non-degree, ad infinitum, refinements of which should keep them employed to the end of time). Degrees produced (by field, level, etc.). Retention rates (by type of student, field...). Presumably, if Behemouth Motors and Sundat produce two cars which are identical in value to the consumer of automobiles, and the second absorbs only half the real resources (labor, material) of the first, we can conclude that Sundat is more efficient. Can we reasonably make comparable claims about credit hours and degrees?

In economics, one attempts to evaluate something with respect to its final use, and in the case of education (as well as autos) this inevitably takes us outside of the plant or production establishment. And to take this step immediately confronts us with an environment, changes in which inevitably alter the relative effectiveness of alternative allocations or resources. Thus, the optimal automobile, taking into account resources absorbed in production and in use, is not the same in 1975, with gasoline at 60 cents per gallon, as in 1972, with 30 cents per gallon gasoline. Yet this step of confronting the environment has been carefully avoided by cost effectiveness entrepreneurs, and by educators generally. Ignoring the environment, our discussions exhibit so much faddism. Topic succeeds topic: institutional versus student support, support versus non-support, moral education, traditional versus non-traditional education, etc. Each topic is addressed in a virtual vacuum, with all participants sharing one fundamental but always implicit premise: that there exists some "right" answer. The only source of disagreement concerns what in fact that right answer is. In the academic realm, the _reductio_ _ad_ _absurdum_ of this approach is the suggestion of a colleague of mine (whom I hope, without much faith, was facetious) that social scientists concerned with education should design the "ideal" education system. But ideal for whom? Under what circumstances? Given what constraints? Even to raise such questions is sufficient to indicate the absurdity of this preposterous approach.

So much for the contributions you will be ASKED to make to the cause of higher education. What contribution should you make? I would argue that we must accept, but not dictate, the following proposition:

Enrollment at both the undergraduate and graduate levels will decline significantly. Given the prospective saturation of all levels of the highly educated labor market, to attempt to sustain enrollment levels or rates through massive subsidization of either students or institutions (and both would probably be required) would be highly inefficient. In a narrow sense, it would be inefficient because the beneficiaries of the subsidies would be better off if given the subsidies in cash. In a broader sense, a maintenance of enrollment would be dynamically inefficient: Higher education at all levels would be devocationalized; shorn of its vocational function, higher education would lose its critical role in the transmission and generation of knowledge. The result would be an invidious inflation of credentialism and the necessity to create new strata of the education system to carry on the limited but important vocational functions which remain for the sector over the next several decades. In short, I would argue, we should make it possible for people to choose higher education, e.g., through provision of an entitlement or wealth transfer available for both educational and non-educational purposes, but we should not require educational activity as a condition for receipt of the entitlement. And furthermore we should then expect enrollment to contract significantly, for both demographic and economic reasons.

The most fundamental argument for accepting this proposition of enrollment decline, I would argue, is that higher education is an institution which, if it did not exist, would have to be invented. If we destroy the capacity of the existing system to perform effectively its traditional scholarly and, albeit contracting, vocational functions, it will be necessary to create a successor, whether that successor is called the graduate school, the institute for research and scholarship or what-have-you. Such a process, I believe, would be more painful and more costly than preserving the existing system.

But if enrollment declines must be accepted, what will be the consequences and what can institutional research contribute to the amelioration of these? A suggestion of the answer to the last question will follow between the lines. Let me simply state here that its contribution will lie in a more literal pursuit of the subject its name implies, that is, the examination of the basic institutional character and process of higher education.

A remarkable characteristic of the higher education system as it has evolved over the past century of sustained growth is its flexibility, its capacity to respond to changing economic, social and student demands. This flexibility has been achieved primarily through what Princeton demographer Norman Ryder characterizes as "metabolism," as opposed to "mutation." That is, change has been accomplished through appropriate channeling of institutions and individuals coming into the system rather than through rechanneling of those already in the system. This is fundamentally a characteristic of a system experiencing rapid growth.

Thus, it can be reasonably argued that growth has been the _sine qua non_ of the effectiveness of the sector. Malleability in resource allocation has been possible primarily because the sector has undergone rapid expansion; growth and decline in particular areas have in general been relative, not absolute.

This continual process of absolute expansion has been of fundamental importance because of its implications for institutional rigidities. An increasing relative emphasis on, e.g., non-agricultural sciences would have been much harder to achieve had it been necessary to reduce absolutely the resources applied to the agricultural sciences. In effect, reallocations within a stable sector imply "capital losses" for persons in declining areas and at least temporary "capital gains" for those in expanding areas. Thus, resistance to change would have been much greater had the sector as a whole not experienced rapid growth.

More fundamentally, the _experience_ of growth has led to institutional structures which are highly growth dependent for their dynamic effectiveness. Thus, for example, the institution of tenure has evolved over more than a century of virtually continuous growth, over which period redirections of academic activity have never required contractions in any particular academic field significantly greater than could be accommodated by normal faculty attrition. Especially in the context of the current faculty age profile, in which the predominance of persons under 40 reflects the rapid rate of growth in the 1960's, this assumption would probably be violated even in the face of relative stability in enrollment. Even on the basis of its overly optimistic enrollment projections, the Carnegie Commission anticipates an increase in the proportion of faculty over age 50 from 23% in 1980 to 53% in 2000; correspondingly, the proportion under age 35 is projected to decline from 28% in 1970 to 4%

in 1990. Under my more pessimistic anticipations, the wrench in the age distribution toward the upper tail would be even more drastic.

With the relative decline in the share of enrollment accounted for by the major research universities, a consequence of the rapid growth of purely "teaching" institutions, a second type of growth dependence arises. While faculty in research institutions, actively involved in research and scholarship, may be able to avoid the obsolescence of knowledge which accompanies aging, in those institutions less oriented toward or committed to research faculty aging may imply pervasive faculty obsolescence and a growing lag between scholarly and scientific advances, on the one hand, and their incorporation into education, on the other. Over the past twenty-years of rapid growth, the avoidance of ossification has been achieved by the high rate of gross inflow of younger, more recently trained faculty, but this will cease to be true over the next two or three decades. How can the ossification which would otherwise result be avoided? I can only make the following suggestions:

1. A significant fraction of all institutions of higher learning (perhaps 40%) should be permitted to fail or to completely alter their functions and clientele. This will be a necessary consequence of enrollment contraction. Again, to attempt to sustain redundant institutions would be statically and dynamically inefficient. Static inefficiency is obvious; a smaller number of institutions will be able to carry on the educational functions of the sector more effectively and at a lesser resource cost than a larger number. Dynamically, the rate of faculty attrition can be vastly accelerated

by institutional collapse, as large numbers of tenured faculty are forced to shift into non-academic employment. Thus, the radical aging of faculties may be partially offset by institutional contraction.

2. The radical aging of faculties can be counteracted. The Carnegie Commission's projections of the faculty age distribution discussed above assume "no changes from present practices in retirement policies, student-staff ratios, net flows to employment outside academic institutions, and the like." In fact, many "present practices" are changing rapidly. As tenured positions have become increasingly scarce, net flows out of academe have increased greatly for younger faculty. Similarly, declining relative faculty earnings will greatly stimulate the exodus of older faculty. A consideration of the latter suggests that these developments may be ambiguous in their effects: If the most outwardly mobile faculty are also the highest quality and most productive, then changes in practice may be deliterious. In any event, a number of concrete policy actions, especially ones which would reduce barriers to migration out of academe, can serve to stimulate desirable increases in (voluntary or involuntary) outmobility of faculty: a) Reducing age discrimination in non-academic employment will facilitate mobility. b) Full and immediate vesting of pension benefits, already common in academic institutions, can be made universal (extended especially to public retirement programs of state institutions) and can be mandated in non-academic sectors. c) Provision can be mandated for exploratory non-academic employment for those with tenure, permitting one or more years in which to "try out" alternative careers with provision

to return without prejudice (simply a generalization of current sabbatical practice). d) Alternative mechanisms (ombudsmen, external faculty review committees, etc.) should be explored which would permit the lowering of tenure protection for the unproductive scholar without sacrificing academic freedom. Other institutional developments which would encourage outmigration of established faculty could undoubtedly be imagined, and in almost all cases appropriate policies could be devised which would facilitate these developments.

3. Mechanisms for reducing rates of faculty obsolescence can be devised. Mitigating the upward shift in the faculty age distribution will itself reduce the average degree of faculty obsolescence. Beyond this, a number of actions can be taken to reduce obsolescence for remaining faculty. For faculty of non-research institutions, the development of research-and-retraining leaves can be encouraged. This would also generalize the existing sabbatical, but would require residence at a major university and active participation in programs of research and education. Because this practice would provide subsidized, lower echelon research labor to the universities, compensating for the reduced availability of graduate students, it should be relatively easy to induce university cooperation. In effect, this proposal would involve the creation of "mid-career" postdoctoral fellowships. For faculty of research institutions, active research involvement should be maintained as a requirement for continued tenure, and encouragement should be given for frequent, externally-funded, research-intensive sabbaticals.

I could continue, but the foregoing indicates, I believe, the range of institutional issues with which it is important that you begin to grapple. The future effectiveness of higher education in the performance of its historic functions will depend on the responses to these emerging exigencies which you and others are able to devise.

ANNEX

Unemployment as a Source of Invisible Student Support

As indicated above, a major cost of education consists of earnings which are foregone when a young person chooses to be in school rather than in the labor force. These foregone earnings, which constitute perhaps 50% of the educational costs borne by the student, are effectively reduced when the unemployment rate rises, since the unemployment rate reflects the probability that the individual, even if he were to seek work, would be unable to find a job. Thus, foregone earnings are adequately measured not by the earnings of young people who do work, but by the product of (a) earnings of those who are working and (b) the probability of employment (one minus the probability of unemployment).

As would be expected, increases in the national unemployment rate over the last six years, and especially since 1973, are mirrored in substantial declines in the expected earnings of young people in the labor force. These declines in expected earnings constitute increases in what are, in effect, "unemployment scholarships." Table 1 indicates the absolute magnitudes of these invisible stipends and changes from 1969 and 1973 to 1975. The basic data on unemployment rates and earnings are contained in Table 2.

Table 1

Unemployment "Scholarships"

	Gross Stipend in 1975	Increase in Stipend 1969-75	
		1969-75	1973-75
Male White	$1,123	$572	$410
Male Non-White	1,964	756	325
Female White	863	305	320
Female Non-White	2,046	696	-25

Source: Table 2

Table 2

Earnings and Unemployment Rates of Young Adults

	Sept. Unemployment Rates			Median Full-time Earnings
	1969	1973	1975	1973
Male White	7.8%	10.1%	15.9%	$7,063
Male Non-White	17.1	23.2	27.8	
Female White	11.0	10.7	17.0	$5,078
Female Non-White	26.6	40.8	40.3	

Sources: September unemployment rates of 18 and 19 year-olds, by age, sex and race — U. S. Bureau of Labor Statistics, Employment and Earnings, Table A-3 of October 1969, 1973 and 1975 issues.

Median 1973 incomes of 18 to 24 year-old high school graduates (full-time, full-year workers) — U. S. Bureau of the Census, Current Population Reports -- Consumer Income (Series P-60, No. 97), Table 57.

These data suggest that the average white male student now receives an invisible stipend of $1,100, an increase of $400 since 1973 and of almost $600 over the 1969 award level. Non-white males, receiving an average of almost $2,000, have benefited from the greatest increase since 1969--over $750--with half of this increase conferred since 1973.

The greatest invisible award, $2,046, is received by non-white females. While this represents an increase of $700 since 1969, minority women appear to have actually experienced a slight reduction in benefits since 1973. White females receive the smallest award, less than $900, but have benefited from an increase of over 50% or $300 since 1973.

The provisional nature of these estimates must be stressed. Both the magnitudes of the invisible awards and their effects on high school and college enrollment will be much more thoroughly explored in a major study of the impact of labor market conditions and financial aid on the educational and labor force participation behavior of young people, a study which has been undertaken by the Institute for Demographic and Economic Studies for the U.S. Office of Education.

. . . the ideas of economists and political philosophers, both when they are right and when they are wrong, are more powerful than is commonly understood. Indeed the world is ruled by little else. Practical men, who believe themselves to be quite exempt from any intellectual influences, are usually the slaves of some defunct economist. Madmen in authority, who hear voices in the air, are distilling their frenzy from some academic scribbler of a few years back. I am sure that the power of vested interests is vastly exaggerated compared with the gradual encroachment of ideas. Not, indeed, immediately, but after a certain interval; for in the field of economic and political philosophy there are not many who are influenced by new theories after they are twenty-five or thirty years of age, so that the ideas which civil servants and politicians and even agitators apply to current events are not likely to be the newest. But, soon or late, it is ideas, not vested interests, which are dangerous for good or evil.

John Maynard Keynes
The General Theory of
Employment Interest and Money

THE VALUE OF ANNUAL FACULTY PROFILES IN MODERN COLLEGE MANAGEMENT

Loren Gould
Worcester State College

Annual faculty profiles can be manually developed for small colleges with 4,000 or fewer enrollment and with limited or no computer capability. The same information could be computerized with more potential use to the college but today's discussion will deal only with manually developed faculty profiles. The Office of Institutional Studies at Worcester State College has developed these profiles for all faculty only in 1974 and 1975 so the methodology is still in the development stage and modifications are still suggesting themselves including some suggested during the preparation of this paper. The profiles are published once a year with data as of midnight December 31st. The first semester ends prior to Christmas vacation so that years at Worcester State College and years in present rank are usually half years and occasionally full years. Other fractions may occur in unusual situations but most will fall into the typical pattern. These profiles, once they are completed, are sent to the President, the Academic Dean and to the State College Central Office in Boston. The recipients may distribute the profiles as they see fit. So far, in the two years of distribution by Worcester State, they have been used for administrative purposes only at the three offices to which they were distributed. In time, as longitudinal trends appear, the Office of Institutional Studies envisions a wider distribution of the profiles with more faculty study of their implications.

Methods of Gathering Data

The Business Office of the college maintains a Personnel History Card on all state employees which yields much of the data used in the faculty profiles. Sex, salary, number of years employed at Worcester State, age and number of years at present rank are all gleaned from the Personnel History Card. Another source of data is the job application form found in the individual faculty member's folder maintained in the Academic Dean's Office. Here one may find the number of years of professional experience prior to Worcester State College employment. Each college must define "professional experience" to fit their unique situation. In our case no teaching assistant or research assistant time is accepted, only full-time teaching experience. This is now being broadened for two of our new programs, Nursing and Management. Full-time nursing experience and full-time business experience at the managerial level are now counted for members of the respective departments. Colleges must be flexible and not persist in following rigid definitions but adapt to local situations and to ever occurring changes. This information is gathered from the personnel folders since it is supplied by the prospective employees as part of the basis as to what professional level and salary they will be offered. Another item of information found in the personnel felder is the date of receipt of the doctorate if one is held. This item is again of value to the prospective employee in regard as to what level and salary the candidate will be offered by the college. Related information that is kept by the Office of Institutional Studies on individual employee cards, is the educational history of each employee listing undergraduate and graduate degrees along with the colleges awarding the degrees and the years that the degrees were awarded. To keep these cards updated requires good liaison with the office of the Academic Dean and with the faculty. Each year the Office of Institutional Studies sends out a questionnaire to all faculty not holding the doctorate to find out the current status of their advanced graduate work. This has resulted in many of the faculty keeping the Office of Institutional Studies as well informed as the Academic Dean's office in regard to doctoral or other advanced degree status. Honorary degrees and CAGS types of certificates are also listed but not other advanced graduate or post-doctoral work unless it results in a degree or formal certificate. Other offices of Institutional Studies might want other details of graduate work. Again, the stress is on flexibility and fitting the form to the needs of the particular institution.

Another item not included in the Worcester State College 1975 faculty profiles but which will be added to future such profiles, is veteran status. In Massachusetts, veterans have a very strong lobby and with current fiscal problems and the request of the Governor to have the authority to fire career state employees, the Office of Institutional Studies has done a separate survey in regard to all Worcester State College employees and this data will be added to the faculty profiles beginning in January, 1976. In our particular case about twenty-five percent of all our employees are United States military veterans. This again is the type of information that has significance for our institution but may be of no value to your institution. Private schools, for example, will probably have no use for such information while public schools will vary from state to state as to whether they need such data. Also, the definition of a veteran will vary from institution to institution. In our case we use a very broad definition which includes those that served only through the reserves. Anyone with an honorable discharge or who is presently serving in the reserves will be included on our lists as a veteran. We even include the widows of veterans since under state law they have veteran's rights as regards job security.

Some of the required information for the faculty profiles may have to be secured by personal interviews if the personnel folder and the Personnel History Card fail to yield it. The Office of Institutional Studies may or may not require proof of the various statements made. In the case of Worcester State College we have not required proof except for authorized transcripts to validate degrees awarded. If, for example, veteran status were to become a criterion for continued employment in the state, the Office of Institutional Studies would require an affidavit or a notarized copy of discharge, etc. (Among other things I am a Notary Public of the State of Massachusetts).

The preceding may sound like a lot of work and it is but once the initial collection of data is complete it is relatively simple to update from year to year. The main thing is to have good relationships with the offices to which changes come. For example, as regards new faculty members, the Office of Institutional Studies receives copies of the monthly Board of Trustee's Minutes which lists all personnel actions including promotions, terminations and new appointments. This is the basic source of information with details being available in the Academic Dean's office in regard to new faculty.

The Data Themselves

Faculty are listed within academic ranks by salary level as of the first of the year with the highest salary being number one. In the sample given you the numerical salary rank replaces the name. Duplicate salaries are listed alphabetically. An asterisk preceding the salary rank number indicates that the individual was hired by Worcester State at the rank now held. Lack of an asterisk means that the individual has received one or more promotions since the original hiring date. All instructors have an asterisk and all assistant professors without an asterisk were hired as instructors and subsequently were promoted. Some offices of institutional studies might wish to indicate with their associate and full professors as to how many promotions they have had at the college but for our purposes this has not been necessary. Such information is available on the individual faculty member's Financial History Card maintained by the Office of Institutional Studies.

The professor's salary rank number may also be coded F, M or FM. This coding is of use in answering affirmative action questionnaires. F means the employee is female and thus subsets of data regarding women employees may be developed. The letter M indicates a federally defined minority person (American Indian, Asian or Pacific Islander, Black American, Spanish-surnamed American) and here again subsets of data may be extracted. FM together means, of course, a female minority person. As is quite evident from the faculty profiles, Worcester State

College is not presently employing anywhere near the minority employees it should be and the present freeze on hiring new state employees is having a decided negative effect. In that same frame of reference, if there are to be any employee cuts made, the M coding should alert those involved in such personnel decisions as to the additional problem that most of our few minority workers are of relatively recent hire and thus seniority rules would reduce the number of minority workers to the point of total invisibility. Data such as these faculty profiles are useful in summarizing a college's position in the case of a suit by an employee on the grounds of racial or sex discrimination. These profiles have been sent to the Federal Department of Labor office in Boston in partial response to a suit lodged against the college by one of its female faculty members. The data may not be what we would like to see but it is valid and will help to settle disputes correctly whatever the final decision may be.

Another card, the Financial History Card, is maintained by the Office of Institutional Studies for each employee giving the financial history of all employees from hiring to the present. Such data is readily available and after an initial contribution of preparation time, does not require too much additional effort to keep up-to-date since all faculty salary changes appear in the monthly minutes of the Board of Trustees. Such financial history cards act as supplements to the faculty profiles and are of primary use when discussing an individual case where details are necessary. An example of such a card follows:

Name of Faculty Member Social Security Number Birthdate

Appointed as Instructor 27 Aug 67 Minority Status Sex

Original Salary	$8,673.60	27 Aug 67	
Merit	9,042.80	1 Sep 68	
Legislative Increase	10,160.80	29 Dec 68	
Step Raise	10,506.60	31 Aug 69	
Promotion	11,091.60	30 Aug 70	to Ass't Prof.
Legislative Increase	11,754.60	27 Dec 70	
Merit	12,695.80	29 Aug 71	
Merit	13,637.00	26 Dec 71	
Legislative Increase	14,227.20	26 Dec 71	
Merit	15,316.60	31 Dec 72	
Legislative Increase	15,821.00	31 Dec 72	
Promotion	16,476.20	26 Aug 73	to Assoc. Prof.
Merit	17,745.00	30 Dec 73	
Legislative Increase	18,844.80	31 Dec 73	

Legislative increase are state-wide cost-of-living increases and they came to a halt with the 1973 cost-of-living legislation. Step raises were eliminated when an all merit plan went into effect but merit has now died and future faculty increases will result from bargaining between the faculty union and the State Legislature. The double merit in 1974 was the result of an effort by the administration of the college to upgrade female faculty salaries and to reduce the discrepancy between male and female salaries, an effort which is still going on.

The number of years of professional experience prior to employment at Worcester State College serves another purpose besides helping the college to decide at what entry level and salary level employment will be offered and that is in regard to promotion and, when we had same, in regard to merit raises. Primarily the years of professional experience prior to Worcester State College employment is used as an argument in regard to promotion.

The number of years since receiving the doctorate must be analyzed case by case since the average figures for each rank are relatively meaningless since about sixty percent of our faculty do not hold the doctorate and the averages given refer only to those who hold the degree. This column is interesting to compare with the number of years at Worcester State College column since there is a fairly close relationship. Five years ago Worcester State had seventy-five percent non-doctorates and the increase reflects planned recruiting with the goal of fifty percent doctorates within ten years. This goal may now not be reached unless present faculty complete degree programs because of the present freeze on hiring caused by the fiscal crisis in the state.

The number of years employed at Worcester State College and the age columns both relate to possible changes in state retirement policies. Retirement now may occur at age 55 or older up to age 70 when retirement is mandatory or for employees with twenty or more years of creditable service. The number of years employment at Worcester State College column reflects only employment at Worcester State College and does not reflect total creditable years of employment eligible for state retirement such as employment at other Massachusett's State Colleges, Community Colleges, University time or public school employment at the elementary or secondary level. Since the present mandatory retirement age in Massachusetts is seventy, the age column is useful for planning purposes to estimate how many employees in various age classifications there are and thus what would be the ramifications of various legislatively proposed changes in the state retirement policies. At the present time the State

Legislature is considering a bill to lower the mandatory retirement age to sixty-five which would also reduce the optional early retirement to age fifty.

Finally, there is a column listing the number of years of employment at Worcester State College at the rank presently held. This is useful when preparing promotion material. For example, we have a local policy that no one can be promoted who has not served at least three years at Worcester State College in his present rank. There are, of course, exceptions, but in general this policy is followed and when the various departmental committees recommend everyone in their department for promotions, which some departments do every year, this is one step towards thinning down such requests to the more valid candidates. A correlative policy is that no one will be promoted without serving at least three years at Worcester State College which can be easily checked by looking at the column headed number of years at Worcester State College.

Comparisons

The following is a summary of the various average figures for each rank:

Rank	Salary	# of Years Professional Exp. Prior to WSC Employ.	# of Yrs Since Doct.
Instructor	$12,797	4	0
Assistant Professor	15,325	6	1
Associate Professor	18,552	7	2 1/2
Professor	22,694	11	12 1/2
Average	$17,335	7	8

Rank	# of Years at WSC	Age	# of Years at Present Rank at W.S.C.	Number of Faculty
Instructor	3 1/2	33 1/2	3 1/2	12
Assistant Professor	5	40	3	93
Associate Professor	8 1/2	45	5	53
Professor	11	51	6	33
Average	7	43	4	191

As might be anticipated, there is a constant increase with increase in rank with the one exception being years in the same rank with instructors a half-year greater than assistant professors. This is explained by the fact that we have a five year up-or-out policy in regard to instructors but three of our instructors were hired before this policy went into effect and they are content to not meet the requirements for promotion and, as tenured faculty members, to remain as instructors.

The following is the summary data from the faculty profile of January 1, 1974:

Rank	Salary	# of Years Professional Experience Prior to WSC Employment	# of Years Since Receiving Doctorate	# of Years at WSC
Instructor	$12,198	2 1/2	2 1/2	4
Assistant Professor	14,520	6	3	4 1/2
Associate Professor	17,695	8	5 1/2	7
Professor	21,894	11	13	12
Average	$16,225	7	7	6

Rank	Age	# of Years at Present Rank at W.S.C.	Number of Faculty
Instructor	34	4	19
Assistant Professor	39	3	89
Associate Professor	45	4	55
Professor	52	6 1/2	26
Average	42	4	189

Again, except for the number of years in the same rank, you can see the expected increase with increased rank. Comparing the two years shows the plateauing effect occurring throughout higher education with the age average moving up one year and the years at Worcester State College moving up one year. The years since receiving the doctorate have also moved up one year while the other columns have stayed the same. Thus the changes reflect the stability of the faculty which will probably continue for the foreseeable future. The average salary has risen 6.8 percent but 6.2 percent of this was the result of a state-wide cost-of-living increase granted to all state employees thus indicating the low level of salary increase on the college campus itself. This was the result of the Board of Trustees not allowing any merit raises this past year with the only salary increases coming from promotions.

In September 1971 the first faculty profile at Worcester State College was developed by the Office of Institutional Studies. This profile was only of full professors and did not cover quite all the areas that the two more recent faculty profiles did. The averages for full professors for the three years surveyed are as follows:

Year	Salary	# of Years Professional Experience Prior to WSC Employment	# of Years Since Receiving Doctorate	# of Years at WSC	Age	Number of Faculty
1971	$19,481	14	13	12	54	23
1974	21,894	11	13	12	52	26
1975	22,694	11	12 1/2	11	51	33

This very limited longitudinal data just gives a hint of some of the interesting possibilities once five or more years of these profiles have been developed. The increase in the number of full professors has certainly had an effect upon the average age but if we are in for a "steady state" the age will creep back up again dependent only upon retirement, death or resignation to open up slots for younger associate professors to fill since we now have the maximum number of full professors allowable.

All in all, a very interesting and useful product which is still undergoing development at Worcester State College. Hopefully, small colleges with limited computer capability will find such faculty profiles useful, remembering to adjust the form to fit their individual situation.

Office of Institutional Studies January 14, 1975

Status of Instructors as of 1 January 1975

Professor	Salary	# of Years Professional Experience Prior to WSC Employment	# of Years Since Receiving Doctorate	# of Years at WSC	Age	# of Years as Instructor at W.S.C.
F * 1	$14,526.20	9		8½	41	8½
F * 2	14,526.20	3		9½	35	9½
* 3	14,440.40	2		9½	35	9½
* 4	13,813.80	4		½	27	½
F * 5	13,813.80	10½		½	35	½
* 6	12,755.60	5		4½	31	4½
* 7	12,599.60	9		½	36	½
* 8	12,373.40	2		4½	31	4½
F * 9	11,349.00	3		1½	43	1½
*10	11,349.00	0		1½	31	1½
*11	11,011.00	1		½	29	½
*12	11,011.00	0		½	29	½
Average	$12,797.42	4		3½	33½	3½

The average Worcester State College Instructor came to the college 3½ years ago, he had 4 years professional experience prior to coming to WSC, he is 33½ years old, is male, does not hold the doctorate and earns nearly $13,000 annually.

Status of Assistant Professors as of 1 January 1975

Professor	Salary	# of Years Professional Experience Prior to WSC Employment	# of Years Since Receiving Doctorate	# of Years at WSC	Age	# of Years as Ass't Prof. at W.S.C.
F 1	$18,197.40	4		16½	43	12
* 2	18,197.40	20		5½	50	5½
3	18,197.40	11		10½	49	4½
* 4	17,750.20	11		5½	40	5½
* 5	17,750.20	7		7½	42	7½
6	17,750.20	8	½	5½	35	4½
* 7	17,573.40	12	4½	3½	42	3½
* 8	17,573.40	16		5½	43	5½
F * 9	17,573.40	12½		1	42	1
*10	17,500.60	7		6½	42	6½
*11	17,238.00	½	3½	2½	30	2½
F *12	17,238.00	10	2½	2½	43	2½
*13	17,238.00	10		2½	42	2½
*14	17,183.40	9		7½	43	7½
*15	17,183.40	22	2½	2½	52	2½
F *16	17,006.60	25		3½	62	3½
17	16,803.80	6		9½	40	5½
*18	16,803.80	9		6½	41	6½
F 19	16,803.80	2		9½	41	7½
*20	16,803.80	13		6½	43	6½
*21	16,590.60	0		½	40	½
22	16,543.80	10		10½	49	5½
*23	16,543.80	4	1½	1	37	1
*24	16,543.80	13		4½	53	4½

	Professor	Salary	# of Years Professional Experience Prior to WSC Employment	# of Years Since Receiving Doctorate	# of Years at WSC	Age	# of Years as Ass't Prof. at W.S.C.
	25	$16,543.80	1		11½	53	6½
	*26	16,320.20	5	3½	2½	31	2½
	27	16,263.00	3½		10½	37	4½
F	28	16,263.00	17		4½	43	1½
F	29	16,263.00	17		5½	44	2½
	30	16,263.00	3		9½	39	6½
F	31	16,107.00	18		6	51	4
	*32	16,107.00	3	6½	4½	32	4½
F	33	15,961.40	12		6½	42	4½
	34	15,943.20	0		11½	48	4½
	*35	15,943.20	9		5½	42	5½
	*36	15,602.60	0	6½	4½	32	4½
	37	15,602.60	9		5½	38	2½
	38	15,602.60	0	2½	4½	34	1½
F	39	15,602.60	10		4½	37	1
	40	15,602.60	11		4½	43	1½
	41	15,602.60	7		6½	41	4½
F	*42	15,410.20	3	20½	1½	52	1½
F	43	15,295.80	5		9½	36	3½
	*44	15,295.80	1	5½	4½	34	4½
F	45	15,295.80	2½		8½	38	3½
	*46	15,067.00	7		1½	35	1½
	47	15,064.40	0		3½	38	½
F	*48	15,064.40	2	½	1½	31	1½
	49	15,064.40	3		9½	36	7½
	50	15,064.40	6		6½	35	4½
	*51	15,064.40	3		4½	31	4½
	52	15,064.40	4	3½	4½	35	2½
	*53	15,064.40	0	3½	3½	40	3½
	*54	15,064.40	6	5½	3½	37	3½
	*55	15,064.40	7	3½	3½	37	3½
F	56	14,796.60	8		12½	47	3½
	57	14,796.60	9		6½	37	4½
	58	14,796.60	2		5½	31	4½
FM	*59	14,796.60	4		1½	38	1½
	60	14,648.40	8		6½	40	2½
F	61	14,526.20	6		6½	45	2½
	62	14,526.20	2	1½	4½	32	2½
F	*63	14,526.20	3	6½	2½	30	2½
F	*64	14,440.40	6		1½	39	1½
	65	14,440.40	1		4½	32	1
F	66	14,440.40	13		7½	65	3½
F	*67	14,214.20	2		½	31	½
F	*68	14,214.20	9		½	38	½
	*69	14,214.20	1		½	41	½
F	*70	14,144.00	6		5½	61	5½
F	71	14,144.00	5		6½	33	1½
	72	14,144.00	6		6½	38	1½
	73	14,144.00	4		5½	39	1
F	74	13,988.00	5		7½	54	2½
	75	13,988.00	0	3½	4½	31	3½
	*76	13,988.00	5		5½	35	5½
	77	13,988.00	4		5½	32	2½

	Professor	Salary	# of Years Professional Experience Prior to WSC Employment	# of Years Since Receiving Doctorate	# of Years at WSC	Age	# of Years as Ass't Prof. at W.S.C.
	*78	$13,813.80	8		1½	33	1½
	*79	13,650.00	9		3	41	3
F	80	13,629.20	2		5½	44	3½
	81	13,629.20	0	3½	3½	27	1
F	82	13,629.20	3		6½	35	1½
	*83	13,449.80	16	4½	4½	46	4½
	84	13,449.80	0		4½	34	1½
	85	13,189.80	1		4½	28	1½
F	86	13,189.80	0		5½	28	1
F	87	13,114.40	4		3	32	0
	*88	13,114.40	2		3½	37	3½
	89	12,911.60	0		5½	51	4½
F	90	12,599.60	3		4½	40	1½
	91	12,599.60	1	0	4½	31	1½
F	*92	12,269.40	½		4½	36	4½
	93	11,809.20	0		5½	32	½
	Average	$15,324.94	6	1	5	40	3

The average Worcester State College Assistant Professor came to the college 5 years ago, he had 6 years professional experience prior to coming to WSC, he is 40 years old, is male, has held the doctorate for a year if he has one and earns over $15,000 annually.

Status of Associate Professors as of 1 January 1975

	Professor	Salary	# of Years Professional Experience Prior to WSC Employment	# of Years Since Receiving Doctorate	# of Years at WSC	Age	# of Years as Assoc. Prof. at W.S.C.
	1	$22,874.80	8		23	55	14½
	* 2	22,874.80	12		14½	56	14½
	3	22,874.80	4		23	48	12
	4	22,305.40	10		17½	54	16½
	* 5	21,262.80	11	21½	4½	52	4½
F	6	21,005.40	29		11½	63	9
	7	20,724.60	13		10½	48	7½
	8	20,241.00	10		9½	43	6½
	* 9	20,241.00	15		8½	55	8½
	10	20,241.00	7		16½	53	10½
	11	20,241.00	5		17½	54	10½
	12	19,981.00	11		12½	56	6½
	*13	19,981.00	24	16½	2½	58	2½
	14	19,981.00	6		12½	44	9
	15	19,981.00	8		10½	52	7½
	*16	19,747.00	8		3½	44	1½
	17	19,237.40	4		9½	65	7½
F	18	19,237.40	15		8½	57	5½
F	19	19,237.40	9		11	42	5½
	*20	19,237.40	13	2½	1½	38	1½
F	21	18,844.80	8	1½	7½	38	1½
	22	18,712.20	10		11½	45	4½

Professor	Salary	# of Years Professional Experience Prior to WSC Employment	# of Years Since Receiving Doctorate	# of Years at WSC	Age	# of Years as Assoc. Prof. at W.S.C.
23	$18,712.20	11		8½	46	4½
*24	18,532.80	3		½	43	½
25	18,532.80	0	1½	1½	31	½
26	18,493.80	3		16	45	9
F *27	18,197.40	10	5½	2½	50	2½
28	18,197.40	2		9½	34	1½
*29	18,197.40	0	3½	1½	53	1½
*30	18,038.80	6	3½	2	42	2
31	17,947.80	6	1½	5½	47	1½
M 32	17,750.20	9	3½	4½	44	1½
33	17,750.20	4	6½	5½	37	3½
34	17,573.40	0	6½	6½	34	1½
35	17,500.60	4		9½	44	1½
*36	17,500.60	8	6½	2½	38	2½
37	17,238.00	3	8½	4½	33	3½
M 38	17,238.00	7		8½	43	6½
39	17,183.40	5		12½	45	7½
40	17,183.40	9	3½	5½	44	3½
F *41	17,006.60	8	9½	1½	38	1½
F 42	17,006.60	1	2½	9½	43	1½
F 43	17,006.60	8	12½	4½	48	2½
44	17,006.60	0	4½	5½	35	½
45	17,006.60	4	3½	4½	31	1½
46	16,803.80	1		9½	55	1½
F 47	16,803.80	9		11½	53	7½
F 48	16,543.80	10	5½	5½	48	3½
49	16,543.80	0	½	10½	33	½
50	15,693.60	1		8½	36	4½
51	15,295.80	2	2½	6½	31	3½
F 52	15,064.40	1	1½	6½	33	½
F 53	14,658.80	7	2½	7½	42	1½
Average	$18,552.32	7	2½	8½	45	5

The average Worcester State College Associate Professor came to the college 8½ years ago, he had 7 years professional experience prior to coming to WSC, he is 45 years old, is male, has held the doctorate for 2½ years if he has one and earns over $18,500 annually.

Status of Professors as of 1 January 1975

Professor	Salary	# of Years Professional Experience Prior to WSC Employment	# of Years Since Receiving Doctorate	# of Years at WSC	Age	# of Years as Professor at W.S.C.
1	$28,441.40	5	19½	24½	56	19½
F * 2	27,677.00	27	21½	16½	65	16½
* 3	26,572.00	8	17½	15½	50	15½
* 4	26,572.00	13	26½	17½	54	17½
F * 5	26,553.80	19	5½	1½	51	1½
F * 6	26,114.40	36	17½	4½	69	4½
F 7	25,516.40	30	22½	5½	61	5

	Professor	Salary	# of Years Professional Experience Prior to WSC Employment	# of Years Since Receiving Doctorate	# of Years at WSC	Age	# of Years as Professor at W.S.C.
	8	$25,022.40	7	18½	17½	51	12
	9	25,022.40	24	12½	9½	61	7½
	10	24,011.00	7	7½	16½	47	7½
	11	24,011.00	3	22½	19½	56	12
	12	23,405.20	10		13½	56	3½
F	13	23,405.20	9	12½	23	53	9
	14	23,405.20	10	15½	22½	58	14½
	*15	23,405.20	25	26½	½	51	½
	16	22,305.40	12	12½	6½	43	½
M	*17	21,769.80	5	16½	4½	52	4½
	18	21,769.80	7	9½	18½	48	9
	19	21,769.80	8	6½	3½	42	1
	20	21,769.80	11	1[illegible]½	11½	48	5½
	21	21,499.40	7	15½	11½	48	5½
M	22	21,499.40	0	9½	9½	42	5½
	23	21,434.40	3	20½	16½	68	5½
	*24	21,262.80	6	8½	1½	39	1½
FM	25	20,724.60	7	5½	5½	39	1
	26	20,241.00	0	11½	7½	46	2½
	27	19,747.00	7	3½	14½	49	2½
F	28	19,476.60	0	2½	15½	43	2½
	29	19,476.60	8	6½	6½	47	3½
	30	19,237.40	7	5½	2	42	0
F	31	18,894.20	29	4½	6½	59	2½
F	32	18,844.80	0	11½	7½	41	5½
F	33	18,038.80	14	5½	2½	40	½
Average		$22,693.82	11	12½	11	51	6

The average Worcester State College Professor came to the college 11 years ago, he had 11 years professional experience prior to coming to WSC, he is 51 years old, is male, has held the doctorate for 12½ years if he has one and earns over $22,500 annually.

* = originally appointed to faculty of WSC at listed rank

Status of All Faculty as of 1 January 1975

Rank	Salary	# of Years Professional Experience Prior to WSC Employment	# of Years Since Receiving Doctorate	# of Years at WSC	Age	# of Years at Same Ran at W.S.C.
Instructors	$153,569.00	48.5	0	42	401	42
Ass't Profs	1,425,219.80	575.5	96	489	3,690	313
Assoc.Profs	983,273.20	382	140.5	446	2,399	254
Professors	748,896.20	364	415	359.5	1,675	205.5
	$3,310,958.20	1,370	651.5	1,336.5	8,165	814.5
Average	$ 17,334.86	7	8	7	43	4

12 instructors, 93 assistant professors, 53 associate professors, 33 professors
191 total faculty.

DEVELOPING AND USING QUALITY OF STUDENT LIFE INDICATORS: THE CYCLES SURVEYS AT HAMPSHIRE COLLEGE, AMHERST COLLEGE, AND THE UNIVERSITY OF MASSACHUSETTS, APRIL 1975

Daniel Kegan, Hampshire College
with
Larry Benedict, University of Massachusetts
Robert Grose, Amherst College

The institutional researcher in higher education has lacked a good set of indicators for monitoring the quality of student life. Some psychological handbooks of research instruments now exist and some commercial tests have gained currency; yet these can be especially ill-suited for innovative and experimental colleges, programs, and goals, for continuous longitudinal studies, or for low-budget research at any kind of institution (Bonjean, Hill, & McLemore, 1967; Buros, 1965; Miller, 1964; Robinson & Shaver, 1969; Shaw & Wright, 1967).

In confronting the problems of developing a low cost, quality institutional research program capable of longitudinal research, continuous broad bandwidth monitoring, and data comparisons with other institutions, we have developed an initial set of quality of student life indicators--the Cycles Survey.

The Cycles surveys have been developing over three years, have been used at Hampshire College for ten surveys over a three-semester period, and have been used in multi-college collaborative studies. They have been used to investigate short-term changes in key monitoring variables over the course of a term; they have been used to measure annual changes at the College; they have been used to investigate the quality of life for specific subgroupings; and they have been used to piggyback other timely research questions. (For a fuller description of the Cycles Survey see Hampshire's IRE Report #R5, The Cycles Surveys: Kegan, 1976).

In addition to these substantive used, a test-retest reliability analysis for the Cycles Survey was completed. Considering that the Cycles instrument is purposely multi-dimensional and that single questions serve to monitor each variable area, the test-retest reliabilities were found to be excellent: modal correlations in the 0.60's with the range from 0.50 to 1.00.

METHOD

After continuing discussions by Hampshire's IRE with Larry Benedict, Director of Student Affairs Research and Evaluation Office at the University of Massachusetts at Amherst (UMass) and with Bob Grose, Director of Institutional Research at Amherst College, both decided that the Hampshire Cycles survey could provide interesting data not otherwise available at their institutions. The Cycles questions were slightly modified to better fit the situations at the other colleges (see Appendix).

The Hampshire Cycles E survey was distributed to 200 randomly selected students on 14 April 1975; the UMass Cycles survey was mailed to 1075 randomly selected students on 16 April; the Amherst Cycles survey was distributed to 200 randomly selected, stratified by class, students on 12 May.* In addition, a modification of the Cycles survey was used in a UMass PULSE phone survey (see UMass SAREO Report #86, 16 April 1975 and Report #89, April 1975). All three mail surveys had followups. Response rates were 55% (109) for Hampshire, 61% (122) for Amherst, and 37% (366) for UMass. The UMass responses were divided into those from the College of Arts and Sciences (CAS, 147 people) and those not from CAS (XCAS, 219 people). Unless otherwise indicated, subsequent reference to the UMass data refers to the CAS subsample.

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*Due to the press of other projects, Amherst was unable to distribute its surveys at the same time as the other colleges. This delay was likely to influence responses to the weather and to days sick. The Amherst survey contained an additional page of instructions, likely to increase its completion time. Finally, Amherst is currently a men's school. For these reasons, the weather, days sick, survey time, and sex variables were omitted from the discrimination analysis. The UMass responses for the age and survey completion time questions were coded as single digit indices reflecting the wider double-digit range of responses. These were recoded for analysis into double-digit numbers, but since some information was lost in the original coding process, additional error variance was by necessity introduced.

THREE COLLEGE RESULTS AND DISCUSSION

Differences between the colleges were investigated using two-tailed t-tests. Table 1 indicates the Cycles variables common to all three surveys and those which had significant ($p < 0.05$) differences between two schools. Hampshire differed significantly from the other two schools by reporting more isolation, more good changes in personal relationships, more noncourse academic effort, more newer students, and a higher ratio of noncourse to total academic effort. Amherst differed significantly from the other two schools by reporting greater satisfaction with the weather, more trust, more commitment to a working group, fewer days sick, more time to complete the survey, and more total academic effort, UMass-CAS differed significantly from the other two schools by reporting less satisfaction with one's adviser, less satisfaction with one's academic progress, less satisfaction with one's college experience, more external locus of control, more involvement in physical activities, less intellectual learning, and being older. The three colleges significantly were rank ordered in terms of satisfaction with security (with Amherst most and UMass least satisfied) and in terms of course academic effort (with Amherst highest and Hampshire lowest).

Previous studies at Hampshire over the past two years have indicated that students' satisfaction with their academic progress and not feeling isolated were significantly related to students' satisfaction with their college experience. In view of this centrality of feelings of isolation, these three-college data further highlight students' isolation as a problem area. As should be expected from Hampshire's examination system, Hampshire students do spend considerably more academic effort on noncourse work than do students at either other college.

Amherst students report having greater commitments to a working group. Some educational research implies that such a commitment is conducive to greater learning (Birney, Grose, & Coplin, 1960). Amherst's greater satisfaction with security raises a few questions: how do objective measures of security problems compare across the three colleges and if objective measures support Amherst's better security, what factors contribute to their better security program? Finally, is the higher trust of Amherst students due to better security and/or to other factors?

Students in the College of Arts and Sciences at UMass report lower satisfaction with their advising, academic progress, and college experience. Comparative data from another large, state university may help place these data into a fuller perspective.

Using a discriminant analysis, 12 variables were found to be major predictors of which college a student attended: satisfaction with one's adviser, ratio of noncourse to total academic effort, external locus of control, course academic effort, ability to create fun, non-course academic effort, involvement in physical activities, satisfaction with house experience, liking mod/suite mates, feeling isolated, and satisfaction with college experience.* Table 2 presents for the nondemographic variables the standardized discriminant function coefficients, which represent the relative contributions of the variables to the discriminant function. Since three college groups are involved, two discriminant functions are derived: the first accounts for 71% of the trace, the second 29%.

Using only the 28 nondemographic Cycles questions, 68% of the usable cases were correctly classified by the discriminant function (see Table 3). Using only 4 demographic questions (age, entering class, Third World, and transfer student), 48% of the usable cases were correctly classified. Using both sets of questions yielded a correct classification rate of 74%.** Since a 33% correct classification rate could be expected by chance, the demographic questions do provide some information for classification. However, it is the Cycles quality of life questions which substantially improve the classification; the demographic questions add only 6% additional predictive power.

Thus, although there are some differences in entering student characteristics, this three college Cycles survey would imply that there are also different program priorities and differing qualities of student life at the three institutions.

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*Major predictors were defined as those for which the change in Rao's V was significant at $p < 0.05$. The discriminant analysis used Rao's method and SPSS version 6.0.

**Some important demographic variables (such as House or School) do not readily scale. Grade point average information was explicitly not requested at Amherst or UMass; at both colleges the researchers felt that "grade inflation" made GPA's no longer a useful index.

DIFFERENCES BETWEEN PHONE AND MAIL SURVEY AT UMASS

There were 13 items in the UMass Cycles survey on which the mail respondents differed significantly from the phone respondents. Of these 13 items, 8 were significant at the 0.01 level and 5 at the 0.05 level. The significantly different items are first presented, followed by a discussion of possible explanations for such differences.

Items significant at the 0.01 level:

Satisfaction with academic progress: the phone respondents were more satisfied with academic progress than were the mail respondents.

Non-course academic effort in hours/week: the phone respondents reported more hours/week in non-course academic effort (Phone mean = 9.1; Mail mean = 5.5).

Hours/week in lounge/living areas: the mail respondents reported more hours/week in these areas (mail mean = 10.6; Phone mean = 9.3).

Hours/week playing-relaxing: again the mail respondents reported more hours/week in these areas (mail mean = 25.7; Phone mean = 22.6).

Semesters at previous colleges: the mail respondents averaged more semesters at previous colleges than did the phone respondents.

Age: mail respondents tended to be older by almost one year (mean).

Third World Membership: the mail respondents had more Third World members than the phone survey.

Minutes to complete the survey: the phone respondents had much less time to complete the survey (Phone mean = 11.7 minutes; Mail mean = 14.5 minutes).

Items significant at the 0.05 level:

Satisfaction with UMass experience: the phone respondents were more satisfied (mean = 2.9 compared to a Mail mean = 2.7).

Satisfaction with housing experience: the phone respondents were more satisfied (mean = 3.01 compared to a Mail mean = 2.94).

Feeling of loneliness: the mail respondents reported being more lonely on the average (Mail mean = 2.49; Phone mean = 2.01).

Intellectual learning: the mail respondents had a higher mean in terms of extent of involvement in intellectual learning (Mail mean = 3.28; Phone mean = 3.22).

Physical learning: the phone respondents had a higher mean (mean = 2.68) compared to the mail respondents (mean = 2.58).

In examining the differences between the two groups, it is first necessary to look at the methodology involved in the administration of the Cycles instrument. For example, estimating the amount of time involved in different activities like non-course work, hours/week in the lounge/living areas and hours/week playing-relaxing. The phone respondents did not have the time to actually figure out the amount of time devoted to each of these areas; they were asked by the interviewers for a quick, rough estimate. Thus differences should be expected between the two groups.

The same would be true of the amount of time necessary to complete the survey: the phone respondents were more rushed, with completion time being a function of the interviewer rather than the respondent. So again, differences between the two groups would be expected.

Some of the differences are due to differences in the demographic characteristics of the two samples. Even though both are random samples, the mail respondents fall much more into a "volunteer" sample since only "volunteers" in a sense return the surveys. The phone respondents, on the other hand, are much more random in terms of the total phone sample in that they can only not complete the survey if they refuse to cooperate. Very few (less than 5% on the average) ever refuse to cooperate. In that sense, then, the phone sample is more random.

These demographic differences can be summarized:

	Mail Sample (returns)	Phone Sample (respondents)	Actual Population
Off campus	40%	22%	40%
Transfers	29%	16%	--
Freshpersons	24%	31%	23%
Seniors	26%	16%	29%
Third World	3%	5%	--
Male	49%	50%	57%

This information provides more insight into possible reasons for differences in the responses of both groups. For example, older students (seniors, vets, etc.) and transfers tend to live off-campus more than freshmen (especially since the University requires freshmen, sophomores and juniors to live on-campus). Thus the age difference can be explained this way. Since transfers tend to live off-campus, the same is true for the difference in previous semesters spent at other institutions.

The phone respondents were more satisfied with academic progress, the total UMass experience and their housing experience. Several hypotheses might be offered to explain these. First, perhaps as students get older, they get more disillusioned, become more resigned and less satisfied. If this were true, and since older students tend to life off-campus, we would expect less satisfaction from the mail group.

A second hypothesis is that disgruntled students might tend to move off-campus more than stay on campus and further, that they remain disgruntled. If this were true, we would also expect lower satisfaction from the off-campus group.

A third alternative is that, possibly, the phone respondents identified the interviewer as a representative of the University or saw the University and interviewer as the "same". If this were true, the phone respondents might not want to "hurt the feelings" of the interviewer by saying that their, i.e. the interviewers', University was not a satisfying place to be. Thus the answers might be more positively skewed than the off-campus group and therefore, we would expect the observed differences between the two groups. (This may be plausible but the question needs to be raised that, if this hypothesis were true, why did it not come through on other questions, like satisfaction with academic experience and course experience?)

In terms of the difference of involvement in intellectual learning, it seems that the kind of person who would take the time to complete and return a mail survey, a rather academic task, would also be the kind of person to be involved in other academic sorts of tasks, i.e. intellectual learning. On the other hand, if the phone sample is a little more random, then we would expect to find involvement in physical learning to be a little more represented in the responses, as indeed it was.

Finally, there is the difference on the loneliness item: mail respondents were somewhat more lonely. One possible explanation which could be researched is that again, the mail survey contained more older and off-campus respondents as well as more transfer students. Transfer students are newer to campus and would not have had as long to establish strong roots and a strong identity with the University. Living off-campus itself, being removed from the University physically, might also prevent strong roots and a sense of identification with the

University from being maintained. These in turn could be causes of loneliness.

In summary, this section has tried to offer some plausible hypotheses to explain most of the differences between the mail and phone Cycles surveys at UMass. Two major reasons which can probably account for most of the differences are 1) the difference in methodology used between the two and 2) the differences in demographic characteristics between the two. Both of these need to be tested in the future.

CONCLUSION

Decision-makers at each of the three institutions may use the data from this combined survey to create a context in which norm-referenced evaluations of college programs may be converted to criterion-referenced evaluations. Further, Amherst College and the University of Massachusetts now have a slice of representative data on a broad bandwidth of quality of life indicators. They can be used to assess changes over time, as well as permitting "a priori post hoc" evaluations of various programs. Finally, they will provide a baseline against which the effects of becoming coeducational or of recent State mandated budget cuts may be measured.

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TABLE 1: SIGNIFICANT DIFFERENCES BETWEEN SCHOOLS.

	HAMPSHIRE			AMHERST			UMASS-CAS			HC-AC		HC-UMASS		AC-UMASS	
	n	x	SD	n	x	SD	n	x	SD	t	p	t	p	t	p
1 times met with advisor	109	1.1	1.22	122	1.3	1.07				-1.55	.12				
2 hours met with advisor	109	1.0	1.20	122	1.1	1.02				-.44	.66				
3 rated contacts w/ advisor	106	3.2	1.22	122	3.1	1.27				.79	.43				
4 satisfied w/ advisor	105	3.2	0.76	121	3.1	0.76	117	2.3	0.97	.53	.60	7.48	.00	7.22	.00
5 satisfied w/ academic progress	109	2.9	0.79	120	2.9	0.70	146	2.6	0.89	-.26	.79	3.26	.00	3.80	.00
6 satisfied w/ Hamp. experience	108	3.0	0.72	119	2.9	0.81	146	2.6	0.84	.54	.59	3.52	.00	2.86	.01
7 satisfied w/ house experience	99	2.9	0.89	122	3.0	0.82	140	2.7	1.01	-.73	.46	1.64	.10	2.55	.01
8 satisfied w/ house staff help	90	2.8	1.06	122	3.3	0.77				-3.94	.00				
9 external locus of control	104	2.1	1.14	116	2.3	1.15				-1.39	.17	-4.64	.00	-3.28	.00
10 satisfied with weather	105	3.5	1.03	119	4.2	0.90	145	2.8	1.21	-5.02	.00	.06	.95	5.30	.00
11 like self	105	3.9	0.78	119	4.1	0.73	144	3.5	1.12	-1.61	.11	1.27	.21	3.03	.00
12 able participate, create fun	107	3.2	1.07	122	3.4	1.13	143	3.8	0.86	-1.48	.14	1.83	.07	3.38	.00
13 been energetic, enthusiastic	107	3.4	0.93	122	3.5	0.99	145	2.9	1.13	-1.17	.24	1.64	.10	2.86	.01
14 been trusting	106	3.2	0.95	119	3.5	0.83	146	3.2	1.01	-3.16	.00	-.80	.42	2.31	.02
15 felt lonely	106	2.5	1.18	122	2.4	1.01	144	3.3	1.09	.20	.84	-.88	.38	-1.19	.23
16 felt isolated	106	2.8	1.23	121	2.5	1.22	145	2.6	1.24	1.99	.05	2.54	.01	.51	.61
17 satisfied w/ security	87	3.1	1.11	102	3.4	1.16	146	2.4	1.26	-2.06	.04	2.57	.01	4.91	.00
18 liked mod/suite mates	99	3.7	1.10	117	3.7	0.91	140	2.7	1.13	.11	.92	-.61	.54	-.82	.42
19 commitment to working group	78	2.8	1.56	90	3.3	1.52	142	3.8	1.13	-2.05	.04	1.28	.20	3.58	.00
20 intellect'l activity involv.	106	3.8	0.84	121	3.9	0.95	123	2.5	1.66	-.78	.43	1.42	.15	2.12	.04
21 social activity involvement	106	3.2	1.02	120	3.3	0.95	145	3.7	1.09	-.50	.62	.91	.36	1.50	.13
22 physical activity involvement	105	2.6	1.11	121	2.7	1.13	144	3.0	1.09	-.79	.43	-2.95	.00	-2.20	.03
23 intellectual learning	102	3.6	0.98	118	3.7	1.02	144	3.0	1.14	-.40	.69	2.08	.04	2.52	.01
24 social learning	95	3.2	1.24	115	3.0	1.29	139	3.3	1.11	.71	.48	1.89	.06	1.17	.24
25 physical learning	95	2.3	1.14	112	2.2	1.21	135	2.9	1.19	.87	.38	-1.22	.22	-2.16	.03
26 satisfied w/ avg Hamp course	102	3.1	0.86	119	3.2	0.77	136	2.5	1.21	-.62	.53	1.10	.27	1.85	.07
27 changes, pers. relationships	100	3.6	1.06	121	3.2	0.85	143	3.0	0.96	2.89	.00	3.44	.00	.36	.72
28 days sick	108	0.9	1.72	122	0.4	0.78	142	3.1	0.67	2.88	.01	-.68	.50	-3.83	.00
29 hours slept per night	109	7.1	1.65	122	7.0	1.36	145	1.0	1.95	.30	.76	-.85	.40	-1.47	.14
30 non-course acad. effort hrs/wk	95	17.2	22.73	118	6.9	8.61	144	7.3	0.83	4.16	.00	4.86	.00	1.46	.15
31 course academic effort hrs/wk	93	28.0	18.14	119	43.31	20.03	142	5.4	8.12	-5.74	.00	-2.15	.03	3.85	.00
32 hrs/wk in lounge/living room	90	8.6	12.59				142	33.5	20.25			-2.15	.03		
							140	11.1	16.94						
33 playing/relaxing, hrs/wk	94	25.9	21.13	118	26.8	17.95	137	25.5	22.42	-.34	.74	.13	.89	.52	.60
35 entering class	109	73.1	1.28	122	71.7	6.95	146	72.5	1.15	2.34	.02	4.59	.00	-1.24	.22
37 semesters in Hamp. residence	108	3.7	2.07	121	4.6	2.14				-3.20	.00				
39 semesters at previous coll.	108	0.5	1.23	121	0.2	0.74	146	0.3	0.44	2.51	.01	1.87	.06	-1.43	.15
40 degree of financial aid	105	1.2	0.51	120	1.4	0.73				-1.98	.05				
43 age	107	20.1	2.86	122	20.0	1.70	147	21.1	2.12	.50	.62	-2.83	.00	-4.72	.00
44 sex	109	1.5	0.50	120	1.0	0.09	146	1.5	0.52	10.75	.00	.82	.413	-10.85	.00
45 third world member	106	1.1	0.80	118	1.1	0.24	143	1.0	0.20	.78	.44	1.01	.31	.63	.53
46 minutes to complete survey	101	15.0	9.89	118	19.7	11.27	144	14.6	4.82	-3.25	.00	.43	.67	4.58	.00
47 total academic effort	100	42.5	23.51	119	50.0	20.61	146	37.8	22.11	-2.51	.01	1.55	.12	4.63	.00
48 ratio noncourse:total acad.	100	35.3	32.84	119	14.4	14.41	146	16.5	23.73	5.92	.00	4.92	.00	-.89	.37

TABLE 2: NONDEMOGRAPHIC DESCRIMINANT ANALYSIS

	WILKS LAMBDA	SIG CHANGE RAO'S V	STANDARDIZED COEFFICIENTS FUNCTION 1	STANDARDIZED COEFFICIENTS FUNCTION 2
V04 satisfied with advisor	0.745	0.000	0.899	-0.069
V48 ratio noncourse:total acad effort	0.669	0.000	0.036	0.158
V09 external locus of control	0.628	0.000	-0.409	-0.203
V31 course academic effort hrs/wk	0.599	0.000	0.127	-0.622
V12 able participate, create fun	0.582	0.001	0.197	-0.207
V30 non-course acad. effort hrs/wk	0.569	0.004	0.269	0.330
V22 physical activity involvement	0.557	0.004	-0.256	-0.113
V07 satisfied with house experience	0.544	0.001	0.353	-0.233
V18 liked mod/suite mates	0.523	0.000	-0.317	0.246
V16 felt isolated	0.515	0.014	0.252	0.038
V06 satisfied with college experience	0.508	0.032	0.154	0.148
V17 satisfied with security	0.502	0.061	0.114	-0.172
V11 like self	0.497	0.095	0.049	-0.203
V19 commitment to working group	0.493	0.177	0.055	-0.216
V27 changes, personal relationships	0.489	0.145	-0.121	0.271
V20 intellectual activity involvement	0.486	0.180	-0.162	0.089
V29 hours slept per night	0.483	0.226	-0.112	0.102
V14 been trusing	0.481	0.296	-0.086	-0.130
V21 social activity involvement	0.478	0.294	0.103	0.022
V25 physical learning	0.478	0.569	0.026	0.179
V24 social learning	0.477	0.564	0.029	-0.127
V15 felt lonely	0.476	0.638	-0.050	0.081
V26 satisfied with average college course	0.475	0.714	0.006	0.096
V23 intellectual learning	0.475	0.822	0.042	-0.067
V05 satisfied with academic progress	0.475	0.953	0.014	0.032

TABLE 3: DISCRIMINANT PREDICTION RESULTS

	n	PREDICTED GROUP MEMBERSHIP			CORRECT PREDICTION
		HC	AC	UMASS	
NONDEMOGRAPHIC QUESTIONS					
HC	103	64	21	18	62%
AC	117	23	77	17	66%
UM	139	15	20	104	75%
	x^2=196.9 $p<0.000$				68%
DEMOGRAPHIC QUESTIONS					
HC	103	43	37	23	42%
AC	117	29	72	16	62%
UM	139	38	43	58	42%
	x^2=35.7 $p<0.000$				48%
BOTH SETS OF QUESTIONS					
HC	103	70	21	12	68%
AC	117	18	87	12	74%
UM	139	11	18	110	79%
	x^2= 272.1 $p<0.000$				74%

TABLE 4. CYCLES QUESTIONS BY COLLEGE: NUMBER RESPONDING AND PERCENTAGE INDICATING HIGHER CATEGORY.

	HAMPSHIRE		AMHERST		UMASS-CAS	
	tot	%	tot	%	tot	%
1 times met with advisor	109	62.4	122	82.0		
2 hours met with advisor	109	60.6	122	70.5		
3 rated contacts w/ advisor	106	45.3	122	39.3		
4 satisfied with advisor	105	85.7	121	84.3	117	42.7
5 satisfied w/ academic progress	109	74.3	120	73.3	146	57.5
6 satisfied w/ college experience	108	77.8	119	70.6	146	60.3
7 satisfied w/ house experience	99	71.7	122	76.2	140	65.0
8 satisfied w/ house staff help	90	21.1	122	45.9		
9 external locus of control	104	36.5	116	44.8	145	65.5
10 satisfied with weather	105	58.1	119	84.0	144	54.9
11 like self	105	72.4	119	78.2	143	66.4
12 able participate, create fun	107	41.1	122	50.0	145	29.7
13 been energetic, enthusiastic	107	43.9	122	51.6	146	39.0
14 been trusting	106	35.8	119	54.6	144	43.1
15 felt lonely	106	50.9	122	47.5	145	50.3
16 felt isolated	106	61.3	121	43.8	146	41.1
17 satisfied with security	87	39.1	102	52.0	140	27.9
18 liked mod/suite mates	99	56.6	117	63.2	142	65.5
19 commitment to working group	78	41.0	90	54.4	123	35.0
20 intellectual activity involvem.	106	69.8	121	72.7	145	57.2
21 social activity involvement	106	38.7	120	38.3	144	35.4
22 physical activity involvement	105	21.9	121	27.3	144	34.7
23 intellectual learning	102	55.9	118	61.0	139	39.6
24 social learning	95	36.8	115	42.6	135	31.1
25 physical learning	95	15.8	112	15.2	136	22.1
26 satisfied w/ average HC course	102	35.3	119	31.9	143	28.0
27 changes in pers. relationships	100	49.0	121	28.9	142	31.0
28 days sick	108	33.3	122	22.1	145	31.0
29 hours slept per night	108	47.2	121	38.8	144	38.9
30 non-course acad. effort, hrs/wk	95	55.8	118	31.4	142	21.1
31 course academic effort, hrs/wk	93	43.0	119	74.8	142	59.9
32 hrs/wk in lounge/living room	90	38.9			140	42.1
33 playing, relaxing hrs/wk	94	71.3	118	77.1	137	63.5
35 entering class (upperclass)	109	30.3	120	46.7	146	54.8
37 semesters at college, first yr	108	39.8	121	28.1		
39 semesters at previous colleges	108	17.6	121	5.0	146	26.7
40 degree of financial aid	105	19.0	120	25.0		
43 age (over 19)	107	54.2	122	63.1	147	65.3
44 sex (female)	109	53.2	120	00.8	146	46.6
45 third world	106	4.7	118	5.9	143	4.2
46 time to complete survey	101	56.4	118	76.3	144	43.1
47 total academic effort	99	56.6	118	71.2	144	48.6
48 ratio noncourse:total acad. work	87	41.4	115	9.6	136	8.8

Hampshire Cycles Survey

HAMPSHIRE COLLEGE

Office of Institutional
Research and Evaluation

Hello! We're trying to learn more about what living at Hampshire is like: what types of changes occur during the course of a year. We need your help in answering these questions which focus on your experience DURING THE PAST TWO WEEKS. Please complete this Cycles Survey today, and return it to IRE, Prescott House, via college mail. Leave blank inapplicable questions; feel free to add marginal comments.

___ 1. How many times have you met with your advisor in the past two weeks (write number).

___ 2. How many total hours have you met with your advisor in the past two weeks.

___ 3. How would you rate your contacts with your advisor: 1) poor; 2) fair; 3) good; 4) very good; 5) excellent.

___ 4. How satisfied have you been with your advisor: 1) very dissatisfied; 2) dissatisfied; 3) satisfied; 4) very satisfied.

___ 5. How satisfied are you with your academic progress the past two weeks (use codes from Question 4).

___ 6. During the past two weeks, how satisfied have you been with your Hampshire experience (use the codes from Question 4).

___ 7. How satisfied have you been with your House experience (use codes from Question 4).

For questions 8 - 26 use this EXTENT SCALE: 1) to a very little extent; 2) to a little extent; 3) to some extent; 4) to a great extent; 5) to a very great extent.

___ 8. I have been satisfied with the help provided by my House staff (use EXTENT SCALE).

___ 9. I feel I have little influence over the things that happen to me.

___10. I have been satisfied with the weather and outside environment the past two weeks.

___11. I like myself.

___12. During the past two weeks, I have been able to participate in and create fun while completing my necessary work.

___13. I have usually been energetic and enthusiastic.

___14. I have been trusting of people, I have not been cautious or guarded.

___15. I have felt lonely during the past two weeks.

___16. I have felt isolated from most of the people at Hampshire.

___17. I am satisfied with Hampshire's security program.

___18. I have liked the people I live with (my mod/suite) the past two weeks.

___19. I have a commitment to a working group--eg. Hampshire Graphics, theater, Climax, peer counseling. What group:

xx. During the past two weeks, to what extent have you been involved in the following activities:

___20. Intellectual ___21. Social ___22. Physical

During the past two weeks, to what extent have you learned in each of these three areas. Also give specific examples of your learnings:

___23. Intellectual ___24. Social ___25. Physical

___26. To what extent are you satisfied with your average Hampshire course (neither your best nor worse course).

___27. During the past two weeks, have you experienced any changes in your important personal relationships: 1) very bad; 2) bad; 3) no change; 4) good; 5) very good.

__ 28. During the past two weeks, approximately how many days have you been unable to do your usual studying and work because you were sick.

___29. On the average, how many hours have you slept per night (write number).

_ _30. In the past two weeks, how much effort have you put into your non-course academic work (independent study, house course, etc.) in hours/week.

_ _31. During the past two weeks, how much effort have you put into your courses in hours per week (include class time).

_ _32. How many hours have you been in your lounge/living room per week.

_ _33. During the past two weeks, how many hours per week have you spent playing, relaxing.

___34. Current residence: 1) Merrill; 2) Dakin; 3) Greenwich; 4) Enfield; 5) Prescott; 6) off-campus.

_ _35. Year you arrived at Hampshire: 19 7 _.

___36. Term you first arrived at Hampshire: 1) January; 2) Spring; 3) Fall.

_ _37. Number of semesters in residence at Hampshire (not on leave).

_ _38. Primarily associated School: 1) none; 2) HA; 3) LC; 4) NS; 5) SS; 6) two or more Schools, list:

___39. Number of semesters at another college before coming to Hampshire (transfer students write number; non-transfers write zero).

___40. What is your degree of financial aid: 1) none; 2) some; 3) full.

___41. How many Divisional exams have you successfully completed.

___42. Divisional contract filed: 1) in Div I; 2) Div II filed; 3) Div III filed; 4) Div III completed.

_ _43. Your age.

___44. Your sex: 1) male; 2) female.

___45. Are you a member of the Third World: 1) no; 2) yes.

46. About Hampshire, I feel ____

____

____.

47. Has anything happened to you personally during the past two weeks that's been good/bad? (clearly indicate which)

48. Have you done anything during the past two weeks that you especially like or dislike? (clearly indicate which)

49. Were there any critical incidents that have happened during the past two weeks--things that may have affected your answers to these questions or were otherwise important to you?

_ _50. Approximate number of minutes you took to complete this survey.

CYCLES SURVEY [UMass]

Hello! We're trying to learn more about what living at UMass is like and what types of changes occur during the course of a year. We need your help in answering these questions which focus on your experiences throughout the year and, in some specified cases, within the past two weeks. Please complete this survey today and return it as indicated. If you have any questions, contact us at 545-1543. Thank you for your help.

Student Affairs Research & Evaluation Office

_____1. During the past two weeks, how satisfied have you been with your UMass experience? 1) very dissatisfied; 2) dissatisfied; 3) satisfied; 4) very satisfied.
_____2. During the past two weeks, how satisfied have you been with your academic experience? 1) very dissatisfied; 2) dissatisfied; 3) satisfied; 4) very satisfied.
_____3. How satisfied have you been with your academic advisor? 1) very dissatisfied; 2) dissatisfied; 3) satisfied; 4) very satisfied.
_____4. How satisfied are you with your academic progress the past 2 weeks? 1) very dissatisfied; 2) dissatisfied; 3) satisfied; 4) very satisfied
_____5. How satisfied have you been with your housing experience during the past 2 weeks? 1) very dissatisfied; 2) dissatisfied; 3) satisfied; 4) very satisfied.

For questions 6-17, use this EXTENT SCALE:

1) to a very little extent
2) to a little extent
3) to some extent
4) to a great extent
5) to a very great extent

NOTE: Please respond to the following questions in context of the PAST TWO WEEKS.

_____6. I feel I have little influence over the things that happen to me at UMass.
_____7. I have been satisfied with the weather and outside environment.
_____8. I like myself.
_____9. I have been able to participate in and create fun while completing my necessary work.
____10. I have usually been energetic and enthusiastic.
____11. I have been trusting of people, I have not been cautious or guarded.
____12. I have felt lonely.
____13. I have felt isolated from most of the people.
____14. I am satisfied with UMass's security program.
____15. I have liked the people I live with.
____16. I have a commitment to a working group, e.g. Outing Club, intramural sports, Student Government. What group?________________________
____17. To what extent are you satisfied with your average UMass course (neither your best nor worse course).

During the past 2 weeks, to what extent have you been involved in the following activities: ____18. Intellectual ____19. Social ____20. Physical

During the past 2 weeks, to what extent have you learned in each of these three areas. Also give specific examples of your learnings:
____21. Intellectual ____22. Social ____23. Physical

____24. During the past 2 weeks, have you experienced any changes in your important personal relationships? 1) yes, bad change; 2) no change; 3) yes, good change.
____25. During the past 2 weeks, approximately how many days have you been unable to do your usual studying and work because you were sick? (Write number.)

____26. On the average, how many hours have you slept per night during the past 2 weeks? (Write number.)

_ _27. In the past 2 weeks, how much effort have you put into your non-course academic work (include independent study, colloqs) in hours/week?

_ _28. During the past 2 weeks, how much effort have you put into your courses in hours/week (include class time)?

_ _29. How many hours per week have you spent in your lounge/living room, during the past 2 weeks? (Write number.)

_ _30. During the past 2 weeks, how many hours per week have you spent playing, relaxing? (Write number.)

____31. During this semester, have you seriously considered transferring to another institution? 1) no; 2) yes.

For questions 32-39 please rate the characteristics of UMass as either good or bad.

____32. Large student body: 1 bad; 2) good

____33. High density of students: 1) bad; 2) good

____34. Outdoor environment: 1) bad; 2) good.

____35. Tuition: 1) bad; 2) good

____36. Student Activeness: 1) bad; 2) good

____37. Academic atmosphere: 1) bad; 2) good

____38. Responsiveness of faculty: 1) bad; 2) good

____39. Responsiveness of non-academic student services: 1) bad; 2) good

____40. Residence: 1) off campus; 2) Central; 3) Orchard Hill; 4) Northeast; 5) Southwest; 6) Sylvan; 7) Fraternity/Sorority

____41. Sex: 1) male; 2) female

____42. Class: 1) freshman; 2) sophomore; 3) junior; 4) senior; 5) non-classified.

____43. Are you a transfer student? 1) yes; 2) no.

____44. Age: 1) under 18; 2) 18-19; 3) 20-21; 4) 22-23; 5) 24-25; 6) over 25.

____45. Are you a member of the Third World? 1) yes; 2) no.

____46. Primarily associated School: 1) CAS; 2) Educ; 3) SBA; 4) Engr.; 5) PE; 6) Health Sci.; 7) Food/Natl Res.; 8) Other

____47. About UMass, I feel

____48. Has anything happended to you personally during the past two weeks that's been good/bad? (Clearly indicate which.)

____49. Have you done anything during the past two weeks that you especially like or dislike? (Clearly indicate which.)

____50. Were there any critical incidents that have happened during the past two weeks--things that may have affected your answers to these questions or were otherwise important to you?

____51. Approximate number of minutes you took to complete this survey: 1) less than 10 minutes; 2) 11-15; 3) 16-20; 4) more than 20 minutes.

Hampshire, University,
Amherst Cycles Survey

AMHERST COLLEGE

Office of Institutional
Research

Hello! We are trying to learn more about what living at Amherst is like: what types of changes occur during the course of a year. We need your help in answering these questions which focus on your experience DURING THE PAST TWO WEEKS. Please complete this Cycles Survey today, and return it to OIR, Box 289, via college mail. Leave blank inapplicable questions; feel free to add marginal comments or use the back of the mailer sheet. Thank you! (Your prompt response will save us the task of following up.)

____1. How many times have you met with your advisor in the past two weeks (write number).
____2. How many total hours have you met with your advisor in the past two weeks.
____3. How would you rate your contacts with your advisor: 1) poor; 2) fair; 3) good; 4) very good; 5) excellent.
____4. How satisfied have you been with your advisor; 1) very dissatisfied; 2) dissatisfied; 3) satisfied; 4) very satisfied.
____5. How satisfied are you with your academic progress the past two weeks (use codes from Question 4).
____6. During the past two weeks, how satisfied have you been with your Amherst experience (use the codes from Question 4).
____7. How satisfied have you been with your dormitory/fraternity/off-campus living experience during the past two weeks (use codes from Question 4).

For questions 8 - 26 use this EXTENT SCALE: 1) to a very little extent; 2) to a little extent; 3) to some extent; 4) to a great extent; 5) to a very great extent.

____8. I have been satisfied with the help provided by faculty members (use (EXTENT SCALE).
____9. I feel I have little influence over the things that happen to me.
___10. I have been satisfied with the weather and outside environment the past two weeks.
___11. I like myself.
___12. During the past two weeks, I have been able to participate in and/or create fun while completing my necessary work.
___13. I have usually been energetic and enthusiastic.
___14. I have been trusting of people, I have not been cautious or guarded.
___15. I have felt lonely during the past two weeks.
___16. I have felt isolated from most of the people at Amherst.
___17. I am satisfied with Amherst College's security program.
___18. I have liked the people I live with the past two weeks.
___19. I have a commitment to a working group--eg. orchestra, athletic team, Amherst Student, club. What group:

xx. During the past two weeks, to what extent have you been involved in the following activities:

= ___20. Intellectual ___21. Social ___22. Physical

During the past two weeks, to what extent have you learned in each of these three areas. Also give specific examples of your learnings:

= ___23. Intellectual ___24. Social ___25. Physical

___26. To what extent are you satisfied with your average Amherst College course (neither your best nor worse course) over the last two weeks.

___27. During the past two weeks, have you experienced any changes in your important personal relationships: 1) very bad; 2) bad; 3) no change; 4) good; 5) very good.

___28. During the past two weeks, approximately how many days have you been unable to do your usual studying and work because you were sick.

___29. On the average, how many hours have you slept per night (write number).

_ _ 30. In the past two weeks, how much effort have you put into non-course intellectual activity (reading, non-credit programs, lectures not related to your courses, private journal, etc.) in hours per week.

_ _ 31. During the past two weeks, how much effort have you put into your courses in hours per week (include class time).

_ _ 32. During the past two weeks, how many hours per week have you spent playing, relaxing.

___33. Current residence: 1) James/Stearns; 2) North/South 3) Pratt/Morrow; 4) Lord Jeffery/Millikin; 5) Social Dorm; 6) Fraternity; 7) off-campus.

_ _ 34. Current Amherst College Class: 19__

_ _ 35. Number of semesters in residence at Amherst (not on leave).

___36. Since first coming to Amherst, the number of semesters away from the College on leave, withdrawal, field study, etc. (if not zero, note type:

___37. Number of semesters at another college before coming to Amherst (transfer students write number; non-transfers write zero).

38. What is your major or probable major:

___39. What is your degree of financial aid: 1) none; 2) some; 3) extensive.

___40. Present post Amherst plans: 1) medicine; 2) law; 3) graduate study; 4) business; 5) other; 6) undecided.

___41. How likely is it that you will use the pass/fail option next year? 1) definitely yes; 2) probably yes; 3) not sure; 4) probably not; 5) definitely not. (Seniors, please note whether you would have used.)

_ _ 42. Your age. ___43. Your sex: 1) male; 2) female.

___44. Are you a member of the Third World: 1) no; 2) yes.

45. About Amherst, I feel ________________________________

____

____

46. Has anything happened to you personally during the past two weeks that has been good/bad? (Clearly indicate which)

47. Have you done anything during the past two weeks that you especially like or dislike? (Clearly indicate which)

48. Were there any critical incidents that have happened during the past two weeks--things that may have affected your answers to these questions or were otherwise important to you?

_ _ 49. Approximate the number of minutes you took to complete this survey.

(thank you)

EMPLOYER-BASED EVALUATIONS OF HARCUM PROGRAMS

Boris Blai, Jr.
Harcum Junior College

The link between postsecondary education and occupations has always been one of the major concerns in studies and policy debates on the question of humanpower development and utilization. During the last two decades a great deal has been written on this topic and efforts are continuously being made to reexamine latest findings, to provide a framework of action that can help insure the best development and utilization of all our human resources.

The issue of training for flexibility in occupational development represents one of the more important and critical areas of concern for education-and its policy makers. There is, in general, a great deal of career indecision during one's educational development. High proportions of both men and women shift in and out of various occupational groupings during their undergraduate years.

For example, the proportion of undergraduate college men who hold the same career plans as freshmen and as college seniors ranges from a high of 56% for school teachers to a low of 7% for mathematicians. Overall, the most stable initial plans are for careers in teaching, law, engineering, and the health fields, in that a relatively high proportion of students planning such careers maintain their plans over time. Those with career plans in the sciences show the lowest stability rates. Parenthetically, I might add that at Harcum there is evidence of a high degree of stability in career selection and career planning. A recent-year analysis revealed, among a sample of

500 graduates, that 8 out of 10 had maintained their initial career choices right on through Harcum graduation. Perhaps a major reason for this high level of stability is Harcum's insistence that each curriculum offered be geared to the development of skills having interfield and inter-occupational transferability.

A curriculum analysis which was completed two years ago revealed that among all of the programs offered - some 21 options - the College had carefully designed into virtually all programs a core of general education represented by course offerings in the three major areas of Behavioral Sciences, Natural Sciences, and Humanities. In those few instances (technician programs) where this distribution was not an established requirement of the prescribed courses, available electives in each curriculum provided the student flexibility to pursue interests in any of these areas.

In essence, this approach permits the development of programs designed to develop basic competencies in mathematics, language-communications, and skills on interpersonal behavior. These are, of course, competencies which could be important in performing tasks in a wide variety of occupations that persons may enter upon college graduation. In pursuing this approach, Harcum believes its graduates acquire generalizable competencies and are ready either to enter the world of work in fields that interest them, or to continue their formal schooling and acquire the necessary knowledge to become experts or scholars in their disciplines.

It is recognized that critics of such competency-based education argue that education is not designed exclusively, or even primarily, to enhance job performance. There are other significant, non-economic benefits to be derived - such as a meaningful life, a sense of satisfaction in what one is doing, fulfillment, self-actualization, and other personal or 'psychic-income' benefits.

In full agreement with this thesis, I would, however, suggest that in doing a job competently, there is the strong implication that the individual is making a societal contribution - which also serves as a form of self-fulfillment and a source of satisfaction. Additionally, when a job is 'well done', one's self-esteem is enhanced, and thus one is provided with experiences which are supportive of self-actualization.

At Harcum, it is a firmly-held belief that an excellent means for gauging the practical effectiveness of its occupationally-oriented programs is to obtain candid, anonymous evaluations from employers of Harcum graduates. In essence, these evaluations can provide a yardstick for the measurement of educational effectiveness among the various career-oriented curriculums offered by the College.

A substantial part of the total instructional budget at Harcum is earmarked for occupational programs of study which have been designed to equip the successful graduate with immediately-useable job skills, knowledge, and attitudes. It is therefore a matter of sound management policy to provide for this essential evaluation technique within an overall system of educational accountability.

Typically, program evaluation data is confined to such quantitative dimensions as numbers graduating in a program of study, and numbers successful in obtaining employment in the field for which such educational preparation is appropriate. In the Harcum scene, a qualitative dimension has been added as a vital part of the total, on-going evaluation plan at the College.

Beyond the annual questionnaire follow-up inquiry among most-recent graduates, which provides important information about jobs obtained, salaries, geographic location, and similar demographic facts - qualitative evaluation data is also obtained. This consists of information whose primary focus is upon specific aspects of job performance competencies.

Employers are invited to respond, anonymously, to an evaluation questionnaire. This instrument consists of 24 specific items which, when responded to, provide evaluative feedback information on three major skills competency areas. I will not itemize the 24 specific skills competencies at this time. However, they will be found in the Appendix to the paper covering this presentation which will be made available later to those desiring the information.

The learning experiences we seek to assess through this follow-up technique are grouped into three major areas of performance-based competencies. These are: 1-technical skills; 2-human relations skills; and 3-problem-solving concepts and abilities. In addition, several questions are asked relating to job advancement possibilities of the employee, as well as the employer's assessment of desire to hire other future Harcum graduates. Collectively, this series of questions provides an in-depth assessment which is expressed in terms of measurable behavioral objectives, with the emphasis clearly on job performance through mastery of objectives.

To distinguish varying qualitative levels of job performance, a

4-item, Likert-type scale of response-categories is utilized for the evaluation of the 24 skills items included in the questionnaire. This consists of an assigned score-value of: 4 equals performance adjudged as 'Highly Effective'; 3 for 'Effective' performance; 2 for 'Ineffective' performance, and 1 for 'Highly Ineffective' job performance. In addition, for the two questions relating to job advancement possibilities and desire for future hire of Harcum graduates, a 5-category scale was utilized in which the score-5=Excellent; 4=Very Good; 3=Good; 2=Fair; and 1=Poor.

The data-responses received from employers is analyzed in both group and individual terms. For example - a mean score is determined for each of the 5 specific skills items included in the broad Technical Skills group. This is done by program of study so that Program Directors and other concerned faculty and staff personnel may pin-point specific weaknesses and strengths, assessed by these employers.

This basic, analysis-pattern is repeated for each of the Harcum programs of study in which the employers respond. A very practical outcome of this evaluation scheme has been that relative weaknesses in job-related skills becomes apparent. As a direct consequence, modifications in program content have been effected in such areas of problem-solving skills as problem definition and problem recognition; in human relations skills such as oral expression, written expression, and accepting criticism; and also such technical skills as knowledge of equipment, equipment maintenance, and accurate manipulation of equipment.

To date, some of the uses of this assessment information have included:

1. Data summaries relating to individual programs of study. These have been developed for the primary use of the concerned Program Directors;

2. Rank-ordering of skills competencies. This has been a useful guide to the assessed relative importance, among these employers, of very specific job skills competencies. This, in turn, may be translated into varying degrees of emphasis placed upon the preparation for the skills competency within the Harcum program of study; and

3. Data summaries relating to the three broad job skills areas have been prepared. These have provided pertinent data to examine differences among the various curriculums, pointing up areas of comparative instructional 'weakness' and 'strength'.

Two collateral, serendipitous findings have been associated with this evaluation procedure. On the questionnaire form, an open-ended item was included. It was simply termed "Comments", with space provided for write-in observations. Some 27 write-in statements have been offered, to date. Complimentary comments regarding the job effectiveness of Harcum graduates have been gratifying to receive, but of even greater practical value have been the sometimes detailed suggestions for specific modifications in curriculum content.

The second finding relates to a relationship or correlation between graduation quality-point averages of these graduates and composite evaluation scores. When a composite rating score is assigned to the evaluated job skills competencies of these graduates, based upon a totaling of evaluations assigned to the specific 24 skills item identified in the questionnaire, a statistically significant positive correlation was found. Should further experience with this follow-up evaluation technique yield additional evidences of significant relationships between these two variables, it could be very useful information for use in the career counseling of the individual. The college's Career Resource Center has expressed an interest in exploring further the possible development of such descriptive-predictive information.

During the two years this scheme has been in operation, some 51 employers have responded to the questionnaire inquiry. They employed Harcum graduates of seven different programs of study, and on the descriptive scale of 4=Highly Effective; 3=Effective, the average value of their evaluations in the Technical Skills area was 3.2. In the Human Relations skills area, their average evaluation was 3.3; and in the area of Problem-solving Abilities they rated the Harcum graduates 3.3. With but one exception, the ratings for this recent group of Harcum graduates in seven different programs of study was at least 3.0, or 'Effective'. As previously indicated, group averages combining the evaluations of all seven programs were, in each of the three major job competency areas, an "Effective-plus" rating. This is, of course, gratifying to report - but of even greater significance to the College has been the pin-pointing of specific areas within programs of preparation which, in the collective judgement of these 51 employers, were evaluated as relative 'weaknesses'.

To date, faculty and staff response to this evaluation scheme has been quite positive. It is, of course, most gratifying for them when they receive positive feedback from a key constituency - the employers of their students. It is anticipated that this annual evaluation-review will continue. This should provide useful information to consider in the updating of curricular content.

In brief then - this use of empirical evidence in an evaluation plan is predicated on the assumption that quality of preparation for employment is a key element of occupational program evaluation. This particular technique is not unique to Harcum. As part of a broad-based evaluation program, it was initially developed, and first utilized in 1971, at Moraine Valley Community College in Illinois.

It is a relatively uncomplicated procedure which can provide usefully practical information for both faculty members and staff-administrators. We can, and we do recommend it!

APPENDIX

HARCUM JUNIOR COLLEGE
Office of Research

Employer-Based Evaluation of Harcum Programs

Harcum Program: ____________

Please check ONE only for each numbered item:

Technical skills levels of preparation

	Highly Effective	Effective	Ineffective	Highly Ineffective
1. Handles equipment with speed				
2. Manipulates equip. with accuracy				
3. Uses equipment creatively				
4. Knowledge of equipment				
5. Equipment maintenance				

Comments? ____________

Human relations skills

1. Cooperates with fellow workers				
2. Promotes uses of new ways				
3. Helps people				
4. Accessible to others				
5. Oral expression				
6. Written expression				
7. Listens to others				
8. Recommends in non-offending way				
9. Cooperates with supervisor				
10. Accepts criticism				
11. Asks appropriate questions				

Problem solving abilities

1. Coordinating				
2. Organizing				
3. Scheduling				
4. Planning				
5. Problem recognition				
6. Implementing successful solutions				
7. Problem definition				
8. Considers alternatives				

Job Advancement Possibilities

____ Excellent ____ Very Good ____ Good ____ Fair ____ Poor

Why? ____________

Your desire to hire other future Harcum graduates:

____ Excellent ____ Very Good ____ Good ____ Fair ____ Poor

Other Comments? ____________

Our sincere thanks!

PROJECT PULSE: A PLANNING TOOL IN A TIME OF DIMINISHING RESOURCES

Ann C. Luciano, CSJ and Larry G. Benedict
University of Massachusetts

College and university decision makers--presidents, deans, department heads, faculty groups--make many decisions affecting students. Often these decisions are made without systematically consulting students, without considering or incorporating their attitudes or opinions. Students complain of being left out of the decision making process, about not having a voice in those many decisions which effect them.

Undoubtedly there are university decision makers who say, "But we did call the Student Senate," or "I did accept a petition from such and such a group," or "I did read the letter in the student newspaper." All of these are certainly student opinion. The point is that these sources of data represent only some students' opinions. Such data sources are neither reliable, systematic, nor representative ways of gathering student input. Vocal minorities, "squeaky wheels", and "guesstimates" probably don't reflect a representative student point of view, but rather a special interest group. They can in fact be harmful because they usually overlook the majority of students on campus.

University decision makers, if they are truly concerned about the often verbalized "desire to meet student needs," should have a rapid, reliable, systematic way of collecting data on those needs. Furthermore, student needs data should be incorporated into the university decision making process.

Such a system becomes all the more important in light of the rapidly and continually changing profile of students and student needs. Gone are the massive strikes and sit-ins of only a few years ago. Gone are the mass marches and demonstrations. But what has replaced them? Right now researchers across the country are undoubtedly conducting studies to determine what students are like and what they need. Such data will probably be obsolete by the time it becomes widely available to university administrators and other decision makers. The student body will have changed again.

We can no longer rely on the slow, traditional, research process to gather student data, analyze these data and report them as rapidly as the data are needed. We have to have a faster, more flexible capability of meeting our data needs.

The University of Massachusetts at Amherst recognized this need several years ago, and in 1973 UMass developed and implemented a new student opinion survey system.* The concept was based on the perceived need of various university decision makers to have student opinion information in making various decisions. Many problems, crises, and issues had arisen on the University campus during the course of the previous years whose nature mandated input of student opinion. For example, during the War Protest Strike of 1970, or the sit-in to protest ROTC on campus, information on student needs and opinions had not been systematically collected and yet such data were needed. At the time of the conception of Project PULSE there was no organized system for collecting or channeling student information. PULSE was therefore organized to provide such data.

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*The idea of developing and implementing such an information system was conceived of by the Associate Dean of Students, W. Daniel Fitzpatrick, and implemented by Dr. Larry G. Benedict, Staff Assistant for Research and Evaluation.

The project was designed to serve as an information gathering service for various decision makers on campus. "Decision maker" was defined to include not just administrative personnel, but faculty, students, and various campus organizations as well. The specific purpose given this project was two-fold: (1) to develop and provide a system whereby a rapid response could be obtained from the student body on any subject matter, expecially current events; and (2) to fill a vital gap in available information.

Operation of Project PULSE

Project PULSE is a Gallup-type poll. Each week, other than the first, of the Fall and and Spring semesters a student opinion survey is designed and implemented. A random sample of the designated student population is chosen by computer. The size of the sample varies with each survey, but an average sample size is 300-350 students. The computer sampling program prints: student name, ID number, class, sex, address and telephone number. Adjustments can be made in the type of student selected, for example, just undergraduates, just on-campus student residents, just sophomore, etc. A different random sample is chosen each week.

Students are hired as interviewers. Most of these are on the Federal Work-Study Program. These interviewers (15-20 students) are trained in telephone interviewing techniques by the project director at the beginning of each semester. The interviews are all conducted over the telephone during a six hour period one evening a week. In the actual interviewing process, the interviewer fills out a worksheet for each person he/she is to call and records the responses to the survey on this sheet. Once the interview is completed the data are then transferred to optical scanning sheets. These sheets are processed by an optical scanner which punches the data onto computer cards. An item analysis program is then run. A final report is then written by the project director and sent to the decision maker requesting the data as well as to others on our mailing list.

In the beginning PULSE was designed as a Student Affairs project--which it still is. However in its three years of operation, it has expanded into a Student Affairs project servicing the University. Last year 28% of the surveys conducted were on Academic matters.

Planning Tools

Last year, most of the surveys conducted by PULSE were for purposes of planning. These ranged from making plans for changes in the student newspaper to planning for fee increases in varying degrees across various fee-based operations. The following are examples:

A Housing Requirement Survey was requested by the Vice-Chancellor's Office in both the Fall of 1974 and Spring of 1975. Its purpose was to determine students' reactions to various residency and dining options. After the surveys were conducted and a comparison of the two semesters made, plans for voluntary housing and dining were not developed but rather a slight change in the previous housing requirement was planned for this year.

The Academic Computer Needs Committee of the President of the

University requested that PULSE conduct a survey to determine students' use of the computer and their computer needs. The results of the survey were to be used with the results of comparable faculty, staff, administration questionnaires so that plans could be made to meet the needs of the three campuses of UMass in the next five years. Recommendations were made to President Wood on the basis of the results of these surveys.

An Alcohol Use and Attitudes Survey was conducted for the University Alcohol Task Force. The purpose of this survey was to gather baseline data concerning student use of and attitudes toward alcohol and to identify some patterns of personal alcohol use. The results of this survey were used (1) as a basis of a grant proposal submitted to the National Institute on Alcohol Abuse and Alcoholism for a preventatively-oriented alcohol education program and (2) as an encouragement to the Task Force in planning strategies to deal with identified areas of need and to continue efforts to assess the scope of alcohol-related problems.

Another example to be cited is the North Village Program survey. North Village is a University housing project, and the Program is one for families living in the project. The purpose of the survey was to determine the attitudes and opinions of the North Village residents toward this Program. The data gathered and reported provided (1) program justification; (2) concrete data indicating impact of the program; and (3) a basis for planning a change in program direction for the following year to include programs for families without children.

A Student Activities Outdoor Interest Group wanted data to examine concerning which activities students participate in, alone or in groups, and any additional activities they might consider if opportunities and facilities were provided. Project PULSE conducted a survey for this purpose. The data was used to identify the support for a new outdoors activity program and to plan for such a program if the support was indicated. As a result of the PULSE survey a new Outdoors Activities Program was initiated at the University.

Resources

The final consideration of this paper is the resources needed to operate such a project as Project PULSE. These are kept at a minimum by using student help and many of the existing resources at the University. Almost all of the student interviewers are enlisted by the Financial Aid Office through the Federal Work Study Program. This program allows a student to work 15-20 hours per week. However, because of scheduling difficulties, many work-study students are unable to work 15 hours during the regular work week. PULSE offers these students a chance to work an additional three to six hours per week, allowing many students who would otherwise not be able to, a chance to work the maximum hours allowed.

The Administrative Data Processing (ADP) Department has written the program to draw a random sample from the University student body. For each survey ADP runs the program, making those adjustments necessary for a given survey sample.

The Student Affairs computer staff and facilities run the scanning sheets through the optical scanner which punches the data onto computer cards, provides a print-out of the cards for checking purposes and sorts and counts cards when needed. The cards are also run through the designated program on the computer for an item analysis by this staff. Technical advice and expertise are also available through them.

Telephones and office space are provided on the evening of the survey by the Student Affairs Office, the Housing Office, and the Dean of Students Office. Recruitment is done through those schools or departments on campus with research components, especially the Center for Educational Research of the School of Education. The faculty from this school has also provided PULSE with technical advice and expertise. Thus very few "hard money" resources are used by the Project. Much interdepartmental help and cooperation provides the real basis for the development and continued success of PULSE.

As estimate of the maximum direct cost of a PULSE survey for a week is:

Work study match:		
student interviewers		
project assistant		$23.40
State funds for interviewers		38.25
Project director (assistantship)		97.29
Secretary (2/5 total salary)		51.20
Materials	paper	1.80
	xerox	2.60
	Optical Scan sheets	3.84
		$218.38

In actuality the cost for each survey is between $180 and $220 per week depending on number of students working each week, length of survey and report requiring secretarial time, amount of materials used, etc.

To date, over 10,000 students have been surveyed by PULSE interviewers for the purpose of gathering data from them to incorporate into the University decision-making process. PULSE is considered by its clients to have moved the decision making process on campus a considerable way from the "seat-of-the-pants" guesstimate to a planned, systematic, data-based process.

A List of 1974-1975 PULSE Surveys

*Career Options/Carnegie Project (SAREO Report #52)

Client: Carnegie Project, Admissions
Purpose: To determine the extent to which sophomores have chosen their majors.
Use of Results: To decide whether a career search proposal to help sophomores choose their majors should be implemented.

*Amherst Law Enforcement Survey (SAREO Report #53)

Client: Amherst Law Enforcement Study Committee
Purpose: To determine the opinions of UMass students toward Amherst police
Use of Results: To be used as a part of the LESC's citizen survey to determine (1) "the citizen's role in Amherst police policy and procedures" and (2) "whether to exact an ordinance to protect civil liberties."

Student Needs Assessment Survey (SAREO Report #56, Summary; #57 Final)

Client: SAREO & the Long Range Counselor Training Committee of the Resource Network
Purpose: To determine what students define as needs at UMass this fall
Use of Results: To generate a prioritized list of student needs.

*Early Decisions Survey (SAREO Report #58)

Client: Admissions
Purpose: To determine student attitudes toward an Early Decisions Policy for Admissions
Use of Results: To make a decision as to whether this policy should be adopted by the University.

*Meal Ticket Survey (SAREO Report #59)

Client: Food Services Governing Board
Purpose: To determine student views of the University Food Services Meal Ticket
Use of Results: To make decisions concerning the price of meal tickets, food plan and services for spring semester.

*Alcohol Survey (SAREO Report #60)

Client: University Alcohol Task Force
Purpose: To determine individual attitudes toward alcohol and its use in the community and to identify some patterns of personal alcohol use
Use of Results: To assist in the development and implementation of a suitable community-wide alcohol education program and to give some direction in developing and planning a more comprehensive survey.

*Collegian Survey (SAREO Report #61)

Client: Managing Editor of the Collegian
Purpose: To determine student opinion of the Collegian regarding content and methods of reporting
Use of Results: To make decisions concerning any changes in the Collegian.

*Academic Governance Survey (SAREO Report #64)

Client: Student Academic Affairs Committee of the Student Senate
Purpose: To determine the students' role in the Academic Governance of the University
Use of Results: To decide whether this committee should go deeper into academic affairs--especially curriculum, and to plan accordingly.

*Outdoor Activities Survey (SAREO Report #65)

Client: Outdoor Interest Group
Purpose: To examine which activities students presently participate in, alone or in groups, and any additional activities they might consider if opportunities and facilities were provided
Use of Results: To identify the support for a new outdoors activity program and then to plan an outdoors activity program if support is indicated.

*Housing Requirement Survey (SAREO Reports #74, 75, 76)

Client: Vice-Chancellor's Office
Purpose: To determine students' reactions to various residency and dining options
Use of Results: To help make plans for next year about living and dining requirements.

Heads of Residence Survey (SAREO Report #72)

Client: Office of Residential Life
Purpose: To determine student attitudes toward and perceptions of their Heads of Residence
Use of Results: To be used in an information packet to be sent to 1975-76 candidates for Head of Residence vacancies.

Public Safety Survey (SAREO Report #78)

Client: Department of Public Safety
Purpose: To determine student opinions on the effectiveness of the Public Safety Program--especially in the residence halls
Use of Results: To aid in the department evaluation for Student Affairs.

*Honors Program Survey (SAREO Report #81)

Client: Honors Office
Purpose: (1) To guage knowledge and opinions of Honors Program among non-Honors undergraduates
(2) To get opinions of courses, advisors, etc. from Honors Program students
Use of Results: To assess the extent to which expectations of students in the Program are being satisfied, and to plan a course of action for next semester.

Rhetoric Survey (SAREO Report #79)

Client: Academic Affairs Committee of the Student Senate
Purpose: To gather information on the actual workings of the Rhetoric Program this year
Use of Results: To support a motion concerning the Rhetoric Program sponsored by Academic Affairs to be put before the Academic Matters Council of the Faculty Senate.

*Career Planning Survey (SAREO Report #84)

Client: Student Development Center
Purpose: To determine students' views on how important several of the existing functions (and some proposed functions) of SDC are
Use of Results: To re-examine what SDC is doing and to determine if they are meeting students' needs, so that planning for next year can be more realistic.

*Fee Increases Survey (SAREO Report #82)

Client: Student Affairs and Budgeting
Purpose: To determine students' opinions on possible fee increases in fee-based operations given certain cost increases
Use of Results: As information to be used when planning fee increases for the next academic year.

Cycles Survey (SAREO Report #86)

Client: Student Affairs Research & Evaluation Office (SAREO)
Purpose: To collect information on undergraduates' perceptions of college life
Use of Results: To build a data base for future reference and comparison with Hampshire and Amherst Colleges.

*North Village Survey (SAREO Report #85)

Client: Mental Health
Purpose: To determine the attitudes and opinions of North Village (a University housing project) residents about the North Village Program for Families

Use of Results: To assess how effective this Program is and what changes need to be made so that revised plans can be drawn up.

*Computer Needs Survey (SAREO Report #87)

Client: Academic Computer Needs Committee
Purpose: To determine students' use of the computer and their computer needs
Use of Results: To be used with comparable faculty, staff, administration questionnaires so that plans can be made to meet the demands of the Amherst, Boston and Worcester campuses of UMass in the next five years.

*(indicates used for planning)

INSTITUTIONAL POLICY RESEARCH ON STUDENT RATINGS OF INSTRUCTION

Edward L. Delaney, Jr. and Edgar E. Coons, Jr.
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Background

Evaluation of faculty performance has been a longstanding policy in most institutions of higher education. While teaching and learning have always been the central functions of postsecondary education, it is the faculty role as scholar and researcher which has traditionally been the primary standard for recognition of institutional excellence and faculty competence. Associated with current pressures toward performance-based teacher accountability in education is the increasing importance placed on the teaching function. The use of student ratings of instruction has become a popular, though controversial, assessment technique for evaluating teaching effectiveness. Student rating instruments have been developed and used for a variety of purposes in institutions whose natures and goals cover the spectrum of post-secondary education. And yet, perhaps no single issue currently divides the faculty at many institutions more than do the questions of the value and uses of such ratings.

Although much research has been published in the recent past on the internal validity of student ratings, comparatively little systematic data have been gathered on the criteria upon which students rate their instructors and upon the purposes to which they are applied (Costin, Greenough and Menges, 1971). This investigation directly addresses these issues.

Hildebrand, Wilson and Dienst (1971) and Wilson, Dienst and

Gaff (1974) reported a considerable discrepancy between colleagual and student ranking on similar criteria of effective teaching. The fair degree of unanimity found in this investigation is more encouraging because it indicates that students in rating instructors are emphasizing the same criteria which faculty, who are to receive the feedback, believe to be most important. In addition, these data help clarify the appropriateness of student ratings for the various purposes suggested by McKeachie (1969). Previous research has not clearly established the effectiveness of student ratings for instructional improvement, nor has there been much data collected on the utility of student ratings for the purpose of course selection.

The research reported in this paper illustrates one model of how an institution of higher education can explore, assess and decide policy concerning the evaluation of teaching effectiveness by students. With increased competition for students and inflationary operating costs, as well as cutbacks in public and private funds available for education, a large urban University imitated a two-year experimental program of student ratings which has as its purpose: 1) to encourage faculty self-improvement of teaching, 2) to provide better consumer information on courses, and 3) to furnish more ample information for faculty personnel decisions. The evaluation instrument used was the Student Instructional Report (SIR), which was developed, supplied and processed by the Educational Testing Service.

After four semesters of data collection in 3,700 courses involving more than 40,000 responses, this University had to decide upon a more permanent policy concerning a student rating program. This study reports the responses of this University's community to four major questions: 1) What are the most important criteria of teaching effectiveness on which instructors should be rated? 2) For what rating purposes (if any) are the applications of these criteria most appropriate? 3) How successfully has the rating technique and instrument been able to reflect these criteria and purposes? and 4) How have the differing levels of involvement, knowledge and interest in the rating program affected the community's judgements of these criteria and purposes.

In order to elicit responses to such questions, two survey instruments were developed and administered at the end of the final semester of the experimental period. One questionnaire was sent to the 1,465 faculty members and departmental chairpersons in the University's five undergraduate schools and colleges. The second instrument was administered in class to a sample of 1,800 undergraduates during a peak class hour throughout the University. A study of the demographic characteristics of those responding suggest that they as a group were fairly representative of the entire population involved in the rating program.

When examined as to what criteria of teaching effectiveness they felt to be most important, both students and faculty were fairly unanimous, reflecting a similar value system in this regard. Each ranked "knowledgeability" of the instructor as the most salient criterion and the instructor's "willingness to interact with students" as second in importance. These were followed by "clarity of course structure" and "work demanded" in decreasing order of importance.

Furthermore, students, faculty and chairpersons alike were found to share a common sense of what was the most important purpose for applying these criteria to the rating of instructors. This purpose was to provide the instructor with feedback that he or she could use for self-improvement of teaching. A second purpose which all three groups agreed was important, though less so, was that the evaluation results could be used to aide students in selecting courses. While both faculty and chairpersons were less than enthusiastic for the administrative purposes which rating results could service, the students saw such a purpose as desirable. Nonetheless, all groups, but most especially the students, communicated a strong sense of dissatisfaction with how in practice these purposes were served by the instrument and the publication format of its results.

Because this study was set in the real context of institutional research, providing results to aid the deciding of academic policy, it includes perhaps the first systematic collection of the attitudes and opinions of students, faculty and chairpersons about the implementation and use of student ratings of instruction. Almost every institution of higher education is currently experiencing decision-making in this area, and could undoubtedly learn much from the policy research model provided by the study of a major university's experiment in student ratings of instruction.

Introduction to Data

In the Fall of 1973 a two-year experiment on evaluation of instructors and their courses by undergraduates was mandated for the entire University by the New York University Senate. This was done in response to the recognition here and at other universities that the health of education urgently depends upon much greater reward being paid to excellence in teaching. Now with increased competition for students and with inflationary operating costs as well as cutbacks in funds for education, each university community is finding how important it is to make sure that its teaching members can justify and promote its existence in terms of good teaching.

To help meet this goal it was felt that the two-year experiment should consist of a program of course evaluation and publication of results to 1) encourage self-improvement of teaching, 2) provide better consumer information on courses, and 3) furnish more ample information for personnel decisions. The Student Instructional Report (SIR) developed by the Educational Testing Service was selected as the evaluation form because it was felt to be more creditable to begin the experiment with a professionally validated instrument rather than to develop and validate a new instrument *de novo*.

This paper is an attempt to report the reactions of the University Community to the experiment and garner suggestions whether and in what directions an evaluation program should proceed in the future. Therefore, two similar questionnaires were created and administered, one to faculty and the other to undergraduates. The goal was to determine and compare the attitudinal responses given by students and faculty to the following questions and issues: 1) What are the important criteria of teaching effectiveness in terms of which instructors should be rated? 2) For what rating purposes are the application of these criteria most appropriate? 3) How successfully has the SIR evaluation instrument been able to reflect these criteria and purposes? 4) What are specific criticisms of SIR and of the form in which feedback of results from SIR has been supplied? 5) What should be future policy regarding student evaluation of instruction at New York University?

Summary and Conclusions Regarding the Findings of the Survey

Approximately 390 faculty and 1370 students responded to a questionnaire sampling attitudes and recommendations regarding the experiment on undergraduate course evaluation conducted at N.Y.U. for the past 2 years. A study of the demographic characteristics of the people responding suggested that they as a group were fairly representative of the entire population involved in evaluation. When examined as to what criteria of teaching-effectiveness they felt to be important, both students and faculty proved to share the same value system. Each ranked "knowledgeability" of the instructors as the most salient criterion. This was followed by "willingness to interact with students", "clarity of course structure" and "work demanded" in decreasing importance. Furthermore, both the students and faculty shared a common sense of what was the most important purpose for applying these criteria to the rating of instructors. This purpose was to provide the instructor with feedback that he or she could use for self-improvement of teaching. A second purpose which both faculty and students agreed was important, though less so, was that the evaluation results could be used to aid students in selecting courses. The students communicated, however, a strong sense of dissatisfaction with how in practice this purpose was being served. Publication of most course results being voluntary, too few faculty permit publication, thereby making it fairly unlikely that a student consulting the volume of printed results would find the information sought. Little enthusiasm was expressed by either students or faculty for the use of the SIR results to provide better information to administrators concerned with making personnel decisions regarding promotion and tenure. The most support accorded to this purpose was from instructors of low rank who approved in theory (but not in practice). As a hypothesis accounting for this effect, it may be that such individuals on the average are just out of graduate school and, thus, are having to expend much time putting their courses together while at the same time, being mindful that scholarly work is also demanded of them if they are to stand a chance of advancement. Such individuals at this uncertain stage of their careers may wish for more recognition of their classroom efforts from the higher authorities in charge of promotions, etc.

Further analyses of the degree of satisfaction expressed toward the SIR instrument showed that neither students nor faculty felt it was as effective as it might be. In general, it was faulted as being limited in the types of courses for which it was evaluatively suited. In particular, the faculty perceived it as having too many questions while the students were concerned that the format of resulting presentation in publication could be improved. Both groups recommended that the SIR instrument be changed and especially that provisions be made for open-ended comments. As to the governance of any evaluation program in the future, the consensus was that it should continue as is--being supervised by a joint Commission of undergraduates and faculty, and administered once a semester. Several subtle points emerged that bore upon there being possible sources of influence on rating attitude that are unconnected with the ostensive criterion of teaching effectiveness. More research is necessary to discern the exact nature of these influences and their effects on rating behavior. Finally, to reiterate the most striking finding, however, was the unanimity that exists between students and faculty in their conviction that the most important function of evaluation is to aid the instructor in perfecting the art and science of teaching.

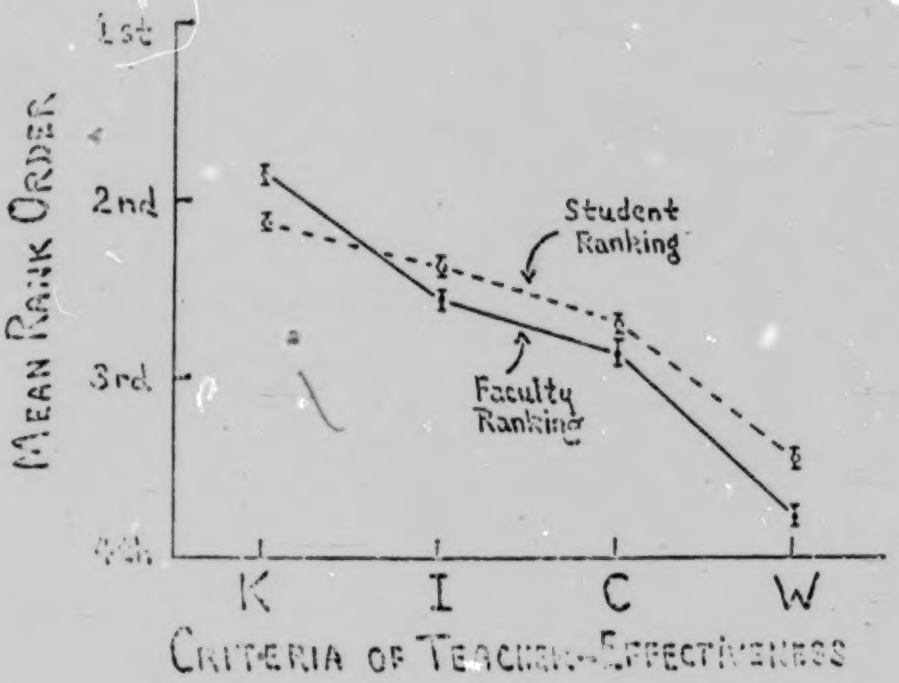

FIGURE 1. Relative ranking of four traits thought to be of importance in determining instructor and course quality. K = Instructor's knowledgability. I = Instructor's willingness to interact with students. C = Clarity with which a course is structured. W = Work and effort associated with a course.

Table 2.1

Rank Value Assigned to Various Criteria of Teacher-Course Effectiveness
(The smaller the mean rank associated with a criterion the more highly valued it is) See questionnaire items F30 and S19.

Criteria of Teacher-Course Effectiveness	Students			Faculty			Chairman		
	M	SE	N	M	SE	N	M	SE	N
Knowledgability	2.126	.0307	1247	1.857	.0600	342	1.980	.1682	53
				$\underline{t}=4.04$ $\underline{p}<.001$			N.S.		
Willingness to interact with students	2.384	.0336	1220	2.560	.0871	341	2.540	.1484	53
				$\underline{t}=2.50$ $\underline{p}<.025$		p	N.S.		
Clarity with which course is defined	2.697	.0350	1221	2.851	.0626	335	2.898	.1646	53
				$\underline{t}=2.064$ $\underline{p}<.050$			N.S.		
Amount & difficulty of work expected	3.485	.0325	1196	3.774	.0549	323	3.532	.1548	53
				$\underline{t}=4.22$ $\underline{p}<.001$			N.S.		

Explanation of abbreviations and symbols.

M = Mean Value
SE = Standard Error of the Mean
N = Number of Cases represented by the mean
$\underline{t}$ = Student's test of the significance of mean difference between groups being compared
$\underline{p}$ = Expectation that a given mean difference could be due to change. (E.g. "$\underline{p}<.001$" indicates that the difference could only have occurred by chance in one out of a thousand such comparisons according to normal probability theory)
N.S. = Non-significant difference
F = Faculty Questionnaire item
S = Student Questionnaire item

Table 2.2

Responses on Questionnaire Items Pertaining to the Correctness and Discriminability with which Students are Perceived as Applying Criteria of Teacher Effectiveness to their Instructors and Courses.

(rater - self rater agreement)

Item S21. In retrospect I would rate a number of my instructors differently now than at the time I was in the course.

M	SE	N	t*	p
2.882	.0312	1125	12.24	$<.001$

(rater - other rater agreement)

Item S27. The information in the published results on courses I had already taken agreed with what I though of these courses.

This item has been examined only for those individuals indicating "Strong Agree (SA)" or "Moderate Agree (MA)" on item S24: "I have found that the particular courses on which I wanted evaluation information were in fact published in the volume of printed SIR results."

	M	SE	N	t*	p
SA	2.189	.1490	37	2.08	$<.05$
MA	2.272	.0533	147	4.28	$<.001$

(rater - ratee agreement)

Item F35. Student SIR ratings of my course(s) generally agreed with the ratings I would have given these courses.

M	SE	N	t*	p
2.089	.0466	225	8.82	$<.001$

Items: S20. How do you overall rate your instructors?
F31. How do you think students generally rate their instructors?

Opinion	Students	Faculty	Chairman
Higher than they deserve	12.1%(143)	23.3%(37)	43.7%(14)
No differently than they deserve	84.3%(994)	58.4%(96)	46.9%(15)
Lower than they deserve	3.6%(42)	18.3%(26)	9.4%(3)

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*The t tests marked with asterisks refer to comparisons of the Means against a null hypothesis of no bias toward either agreement or disagreement with the item. The value of such a null hypothesis is taken as 2.5 - a number that is at the midpoint between the two extreme ratings that could be given: 1 (strong agreement) or 4 (strong disagreement).

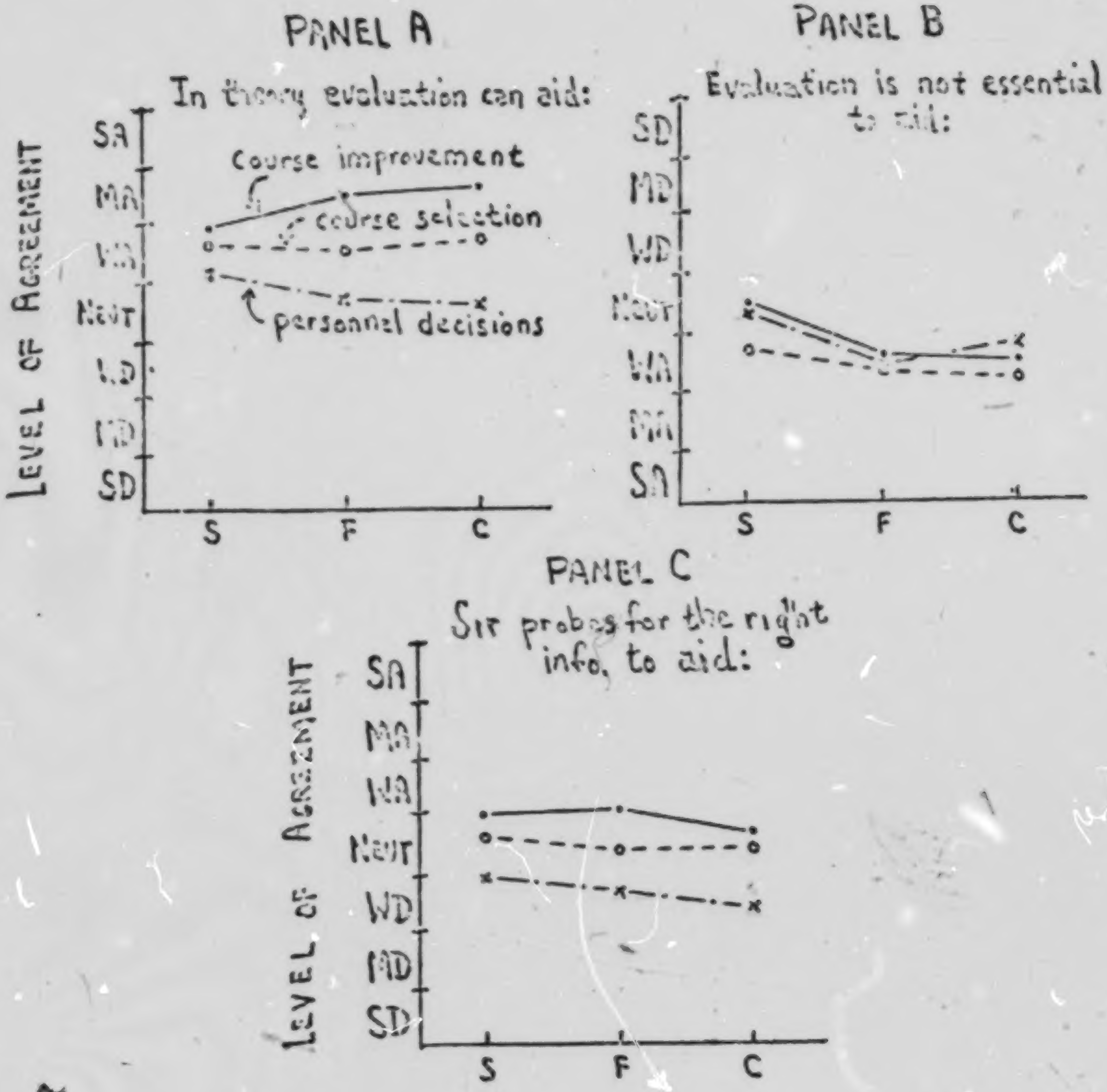


FIGURE 2. Degree with which Students (S), Faculty (F), & Chairmen (C) agree with the above statements concerning the efficacy of evaluation and the SIR evaluation instrument. SA = strong agreement. MA = moderate agreement. WA = weak agreement. Neut. = neutrality. WD, MD, & SD = Weak, moderate, and strong disagreement, respectively.

Table 3.1

Attitudes about Usefulness of Evaluation in Theory & Practice

Purpose	Students				Faculty				Chairmen			
	M	SE	N	p*	M	SE	N	p*	M	SE	N	p*
Improvement:												
E can aid	1.92	.024	1369	<.001	1.62	.037	370	<.001	1.60	.100	58	<.001
E not necess.	2.49	.025	1321	NS	2.08	.045	360	<.001	2.09	.124	55	<.005
SIR can aid	2.28	.024	1127	<.001	2.26	.066	308	<.001	2.42	.133	42	NS
Selection:												
E can aid	2.04	.023	1355	<.001	2.08	.047	362	<.001	2.00	.124	57	<.001
E not necess.	2.15	.023	1326	<.005	2.00	.042	355	<.001	1.94	.112	53	<.001
SIR can aid	2.46	.025	I084	NS	1.08	.049	287	NS	2.57	.144	47	NS
Personnel Decis:												
E can aid	2.23	.027	1305	<.001	2.44	.054	365	NS	2.51	.145	57	NS
E not necess.	2.42	.026	1287	<.005	2.04	.050	351	<.001	2.19	.131	55	<.025
SIR can aid	2.75	.029	999	<.001	2.87	.058	284	<.001	3.00	.144	47	<.001

* Significance of Mean Difference from 2.5 Null Hypothesis

Significance Tests of Mean Differences Between Student & Faculty Attitudes Regarding Evaluation Usefulness

Improvement:	t-test	p	Personnel Decis.	t-test	p
E can aid	5.79	<.001	E can aid	3.63	<.001
E not necess.	7.53	<.001	E not necess.	6.59	<.001
SIR can aid	0.26	NS	SIR can aid	1.94	<.10
Selection:					
E can aid	0.71	NS			
E not necess.	2.99	<.005			
SIR can aid	1.08	NS			

Table 4.1

Responses on Questionnaire Items Pertaining to How Successful in Terms of the Usefulness of the Results the SIR Instrument is Perceived as Being.

Item F33. The information in my SIR results was appropriate for helping me plan and present my course(s).

I participated at some time in SIR (F14)

I used feedback to aid me (F12d)		Yes	No
Yes	M	2.057	2.000
	SE	.0681E	.2580
	N	122	6
		p* <.001	p* <.10
No	M	3.050	2.571
	SE	.0808	.3689
	N	119	7
		p* <.001	NS

	Yes	No
t	9.4078	1.226
p	.001	NS

Item F35. Student SIR ratings of my course(s) generally agreed with the ratings I would have given these courses.

I participated at some time in SIR (F14)

I used feedback to aid me (F12d)		Yes	No
Yes	M	2.000	2.000
	SE	.0602	.4080
	N	118	4
		p* <.001	NS
No	M	2.225	1.750
	SE	.0735	.2500
	N	102	4
		p* <.001	p* <.10

	Yes
t	2.389
p	.025

(Table 4.1 continued)

Item S25. The information in the published results answered the specific questions I had about the course(s) I was interested in.

This item has been examined only for those individuals indicating SA or MA on item S24: "I have found that the particular courses on which I wanted evaluation information were in fact published in the volume of printed SIR results."

	M	SE	N	t*	p
SA	2.150	.1623	40	2.1565	<.025
MA	2.348	.0602	158	2.5249	<.025

Item S27. The information in the published results on courses I had already taken agreed with what I thought of these courses.

This item has been examined only for those individuals indicating SA on item S24 (see above).

	M	SE	N	t*	p
SA	2.189	.1492	37	2.0844	<.025

Table 4.2

Responses to Various Survey Items as a Measure of the Degree to which the Respondents See Themselves and Others as Participating in the SIR Evaluation Experiment.

Item S24. I have found that the particular courses on which I wanted evaluation information were in fact published in the volume of printed SIR results.

M	SE	N	*t*	*p*
2.794	.0436	510	6.74	<.001

Item S22. I would like to be able to rate more of my instructors.

M	SE	N	*t*	*p*
1.797	.0290	1103	24.24	<.001

$p<.001$

Items F & S7. Some form of student rating of instruction should be compulsory for all instructors of undergraduate courses.

	M	SE	N	*t*	*p*
Students	1.704	.0254	1297	31.33	<.001
Faculty	2.228	.0604	360	4.50	<.001

Note: The student and faculty mean differ from each other at $p<.001$ ($t=9.054$).

Item S28. I feel that the instructors of my courses are trying to make use of the SIR evaluation results to improve their teaching.

M	SE	N	*t*	*p*
3.023	.0325	777	16.09	<.001

Item S10. I know that my advisor has used the SIR published results in helping students to select courses.

5.55% out of 1405 cases checked in affirmative.*

Note: 4.1% (16) of the faculty say they used SIR to help students select courses

Table 4.4

An Itemization of Respondents to the Survey According to their Degree of Involvement with the Evaluation Experiment.

Participated in SIR

FACULTY		Y		N		
		Used Results to Aid Course Preparation		Used Results to Aid Course Preparation		
		Y	N	Y	N	
EXAMINED SIR RESULTS	Y	83	70	2	22	
	N	45	82	5	80	
						389

Participated in SIR

STUDENTS		Y		N		
		Used Results to Aid Course Selection		Used Results to Aid Course Selection		
		Y	N	Y	N	
EXAMINED SIR RESULTS	Y	75	209	3	9	
	N	28	859	3	189	
						1375

SUMMARY:	PARTICIPATED		EXAMINED		USED	
	Y	N	Y	N	Y	N
FACULTY	280	109	177	212	135	254
STUDENTS	1171	204	296	1079	109	1266

Table 4.6

Faculty Attitudes Toward Evaluation as These are Associated with Degree of Involvement with the Evaluation Experiment.

			FACULTY PARTICIPATED			
			Y		N	
CRITERION:			Used Feedback		Used Feedback	
In Theory Ratings Can Help Improve Teaching						
			Y	N	Y	N
SIR RESULTS EXAMINED	Y	M	1.41	1.91	1.00	1.32
		SE	.062	.086	0	.102
		N	83	68	2	22
	N	M	1.51	1.74	1.40	1.64
		SE	.082	.095	.245	.089
		N	45	80	5	78
SIR Probes for Right Information to Improve Teaching						
SIR RESULTS EXAMINED	Y	M	2.03	2.54	3.00	2.13
		SE	.089	.108	1.00	.215
		N	77	68	2	15
	N	M	2.07	2.51	1.67	2.11
		SE	.088	.107	.334	.131
		N	44	70	3	36
Information in SIR Results is Appropriate to Preparing Courses						
SIR RESULTS EXAMINED	Y	M	2.02	3.09	2.50	2.50
		SE	.084	.102	.500	.500
		N	79	65	2	4
	N	M	2.12	3.00	1.75	2.67
		SE	.116	.127	.250	.667
		N	43	54	4	3

Table 4.7

Student Attitudes Toward Evaluation as These are Associated with Degree of Involvement with the Evaluation Experiment.

CRITERION:

In Theory Ratings Can Help In Course Selection

			STUDENTS PARTICIPATED Y		STUDENTS PARTICIPATED N	
			Used Results		Used Results	
			Y	N	Y	N
EXAMINED SIR RESULTS	Y	M	1.82	2.14	~~1.67~~	~~1.67~~
		SE	.080	.067	~~.667~~	~~.236~~
		N	74	205	~~3~~	~~9~~
	N	M	1.89	2.06	~~2.33~~	1.94
		SE	.119	.029	~~.882~~	.056
		N	28	826	~~3~~	182

The Published Information in the SIR Answered My Specific Questions

			STUDENTS PARTICIPATED Y		STUDENTS PARTICIPATED N	
			Used Results		Used Results	
			Y	N	Y	N
EXAMINED SIR RESULTS	Y	M	2.29	2.90	~~2.00~~	~~2.40~~
		SE	.102	.075	~~0~~	~~.600~~
		N	70	156	~~2~~	~~5~~
	N	M	2.82	2.88	~~3.00~~	2.85
		SE	.177	.060	~~0~~	.317
		N	27	262	~~1~~	13

Table 4.8

Faculty Attitude Regarding Evaluation as a function of Semesters of Voluntary SIR participation as Assessed in a Faculty Sub-sample Who Indicated on the Survey that They both Examined and Used the Results from their SIR Evaluations.

	Semesters Participated		
Items	1	2	3
	(n= 15-19	18-23	35-37)
F 1 In theory Eval. can aid self-improve.	1.26	1.44	1.49
F 2 In theory Eval. can aid course selct.	1.79	1.91	1.91
F 3 In theory Eval. can aid pers. decision.	1.89	2.04	2.22
F21 SIR can aid self-improvement.	1.61	2.00	2.22
F22 SIR can aid course selection.	2.11	2.32	2.53
F23 SIR can aid personnel decisions.	2.11	2.37	2.88
F33 SIR has right info. to help plan course.	1.63	2.05	2.20
F34 SIR feedback presented in right format.	2.22	2.26	2.37
F 7 Eval. should be compulsory.	1.37	2.30	1.95
F24 Sir has too many questions.	3.20	2.42	2.50
F25 Sir suffers from no open ended comments.	2.00	2.11	1.88
F26 SIR was appropriate to course.	3.00	3.00	2.86
F 8 student ratings not very discriminative.	2.47	2.44	2.12
F 9 Costs don't justify Evaluation.	3.27	2.82	2.97

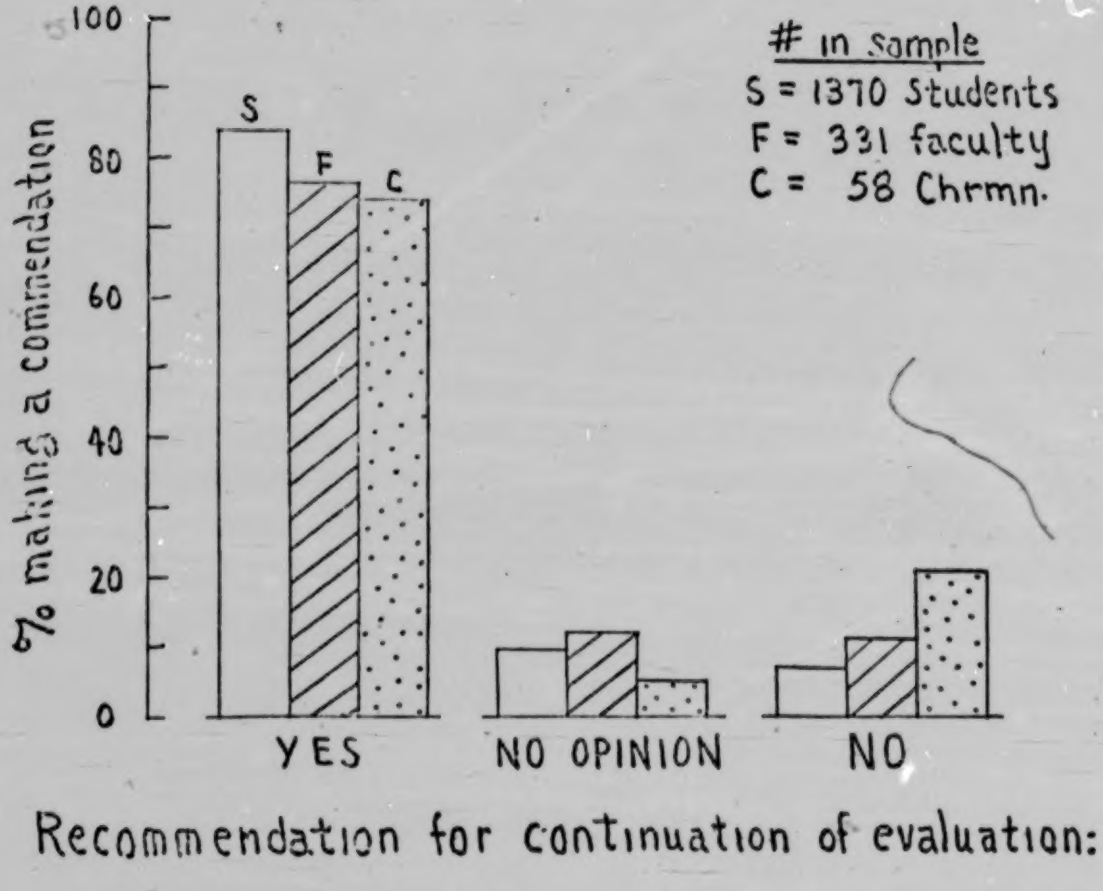
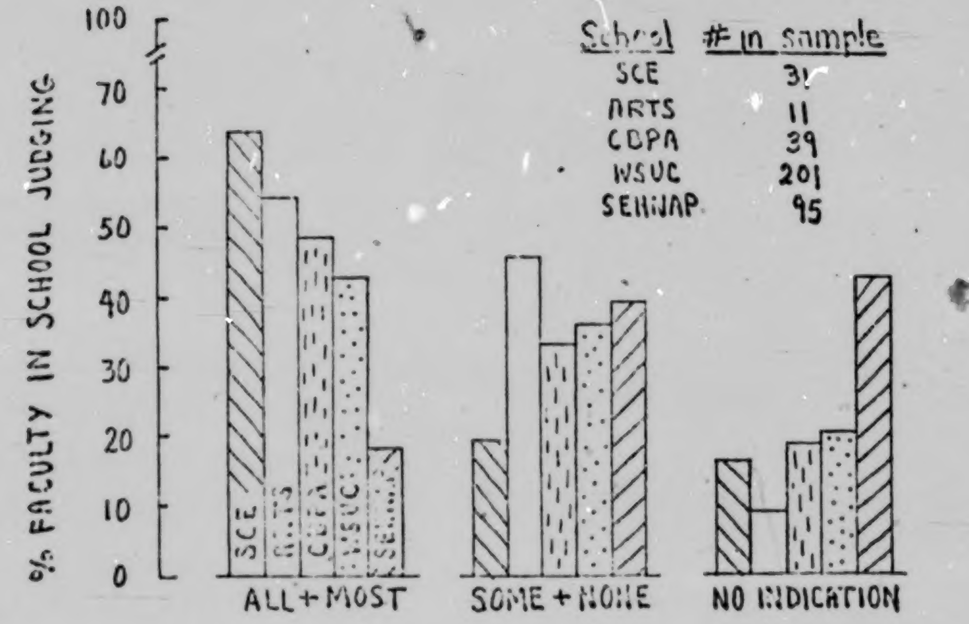
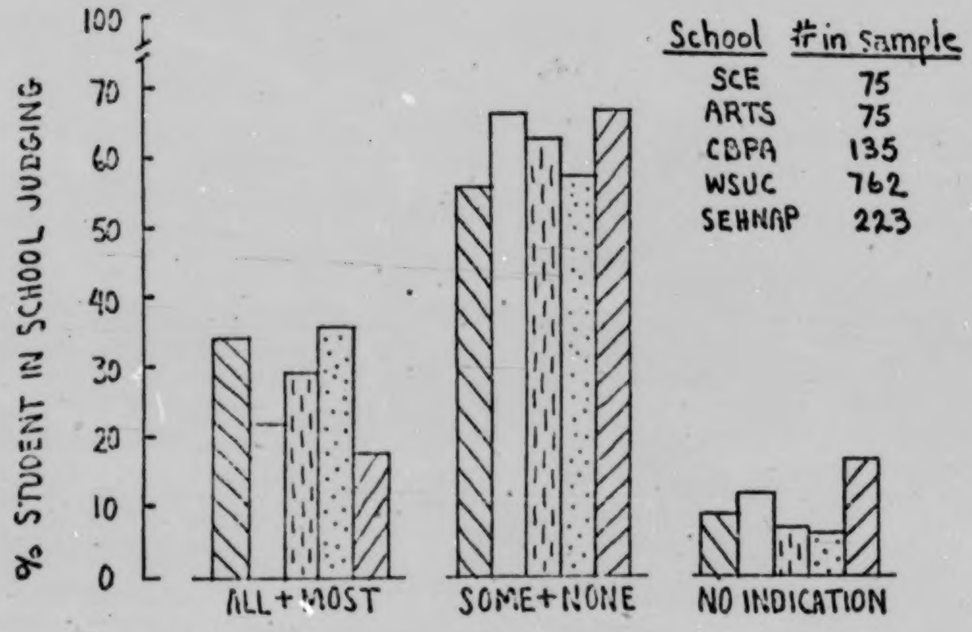


FIGURE 3. The percent of students, faculty, and chairmen making a particular recommendation regarding the continuation of evaluation.



COURSES FOR WHICH SIR IS JUDGED APPROPRIATE BY FACULTY



COURSES FOR WHICH SIR IS JUDGED APPROPRIATE BY STUDENTS

FIGURE 4. The percent of students and of faculty making a particular judgement regarding the appropriateness of the SIR instrument.

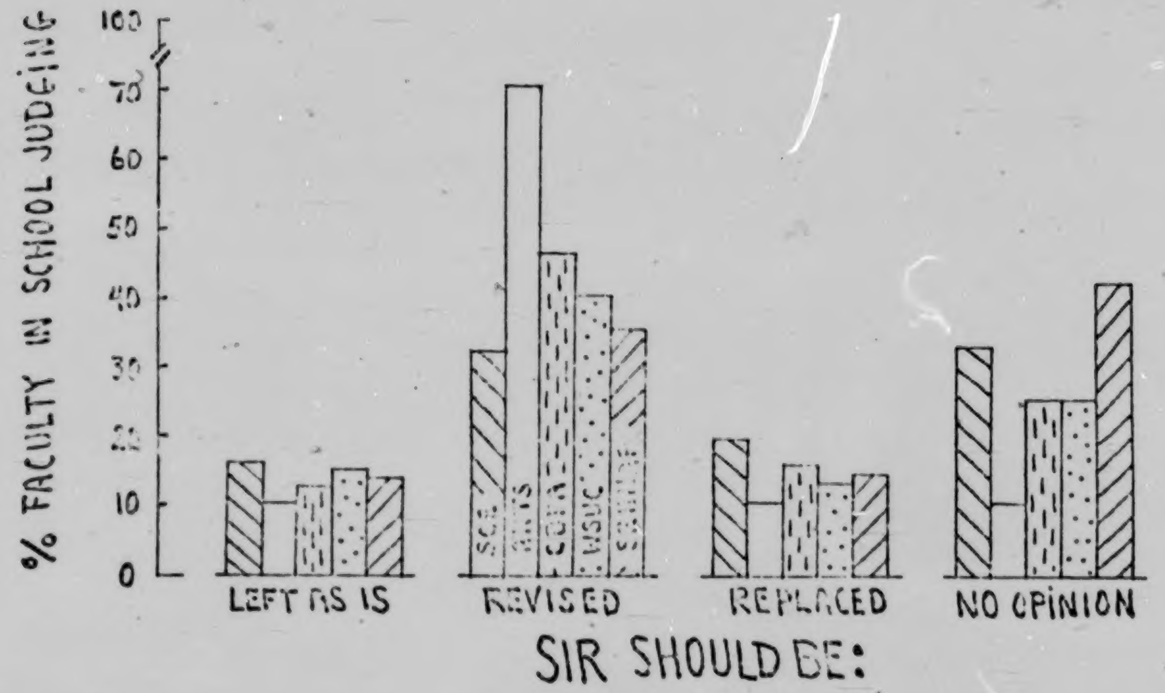


FIGURE 5. The percent of faculty making a particular recommendation about the fate of the SIR evaluation instrument.

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DEVELOPING INSTITUTIONAL POLICIES TO COPE WITH BUDGET REDUCTIONS

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University of Massachusetts

Introduction

During the past year, attention has focused on problems caused by actual or projected budget reductions at many colleges and universities in the United States. These reductions indicate that higher education is now receiving less support than it has in the recent past. A variety of names have been given to the present state of affairs; however, the terms most frequently heard are "retrenchment," "steady state," "financial exigency," and "decline."

Taking notice of the seriousness of the problem, Dr. Melvin A. Eggers, Chancellor of Syracuse University, speaking at the Annual Meeting of the American Council on Education (ACE), issued a call for the President of the United States to appoint a commission, which would exclude academics, to determine how and where American higher education should be cut.[1] Dr. Eggers stated that "...present trends in the financing of higher education and in the age distribution of the population amount to a time bomb ticking away." He proposes that the "National Commission on Higher Education" address the following questions among others:

> By how much does the higher education complex need to shrink?
>
> If the higher education establishment is to shrink, where should the shrinkage occur?
>
> What should be the proper mix of public and independent institutions in the higher education complex?

It appears as if higher education in the United States will, within the next few years, complete the transition from a period of rapid and expansive growth to consolidation and decline. The manner in which this decline occurs will have a long-lasting impact on our profession.

Kenneth Boulding, after stating that the greatest problem facing our whole educational system over the next twenty years is the high probability of declining enrollments, lists as one of educations' first priorities the development of a new generation of academic administrations who are skilled in the process of adjusting to decline. Dr. Boulding goes on to say:

> "...we know so little of decline that we are not even sure what these skills (to manage the process of decline) are. I would like to see institutes, workshops, and courses all over the country in the creative management of decline. Before we can do this, however, we need to study decline through research programs, beginning perhaps with the educational system, where decline is already upon us..."[2]

The September 22, 1975, edition of the Chronicle of Higher Education carried as its headline "Politics, Not Formulas, Now Cutting Budgets." The article reported some interesting views of four well known persons in American higher education regarding the current status and future prospects for the enterprise.

Dr. Robert Berdahl was reported to have noted that nearly half of all statewide governing and coordinating boards are undertaking reviews that may result in the elimination or consolidation of courses or programs. In the face of these possible consolidation and declines, Berdahl finds that presidents of colleges and universities, in many cases, welcome pressure from external bodies in order to cope with the internal campus politics of decline.

In the same article, Dr. John D. Millett stated that "none in higher education management can afford to ignore the possibility of economic decline." He further stated that "the possibility of an end to existence may provide a favorable environment for change." Dr. Millett expects that "motivation for change within colleges and universities will have to be largely supplied externally."

Dr. Millett's views appear to agree with those of Dr. Boulding because Millet went on to say:

> "...it is time for higher education intellectual resources to be devoted on a substantial scale to the subject of the economic limits of growth. Of all institutions in American society, higher education is the appropriate one to begin to undertake the research needed to determine the limits of growth for the American economy and to explore the alternative social models of a no-growth or declining economy."[3]

In the same article mentioned earlier, Lyman A. Glenny reported that under the pressures of retrenchment, formula budgets at the state level have often given way to the give and takes of politics and negotiations.

The discussions above illustrate that many of the current writers on and about higher education are convinced that higher education is headed toward decline. These same writers also appear to be of the opinion that current leadership in higher education is either unable or unwilling to effectively cope with the task of managing the enterprise during a period of decline. The writers seem to be calling upon presidents and other college and university administrators to begin preparing higher educational institutions for an eventual period of decline, although these same writers recognize that the politics of the campuses demand external pressure in order for the process to have a smooth beginning.

Before presidents and planners in higher education can or should begin planning for decline, however, there should be near unanimous agreement that decline either has begun or will become a reality. The possibility of decline, though predicted by many, is still not a certainty as Figure 1 reveals.

The most interesting aspect of Figure 1 is the wide differences of opinions that scholars have regarding future enrollments in higher education. In one sense these differences of opinion make the problem infinitely more difficult. The difficulty arises because there is no consensus on a definition of the problem and if the problem cannot be defined, there surely cannot be uniformity of actions to effect a solution. In the present situation, even though many signs point to a decline, the optimists always have the hope, supported by a projection, that a turnaround will soon come.

Table 1 reveals some recent trends in FTE* enrollments and expenditures for higher education in the United States along with the Gross National Product (GNP). As may be seen, expenditures for higher education have been rising at a rate faster than the GNP. The trend of expenditures growing at a rate faster than the GNP must inevitably be halted or, as William Boumal has noted, the part (expenditures for higher education) will eventually become the whole. Figure 2 graphically illustrates the recent trend.

The discussion above coupled with recent higher education budget

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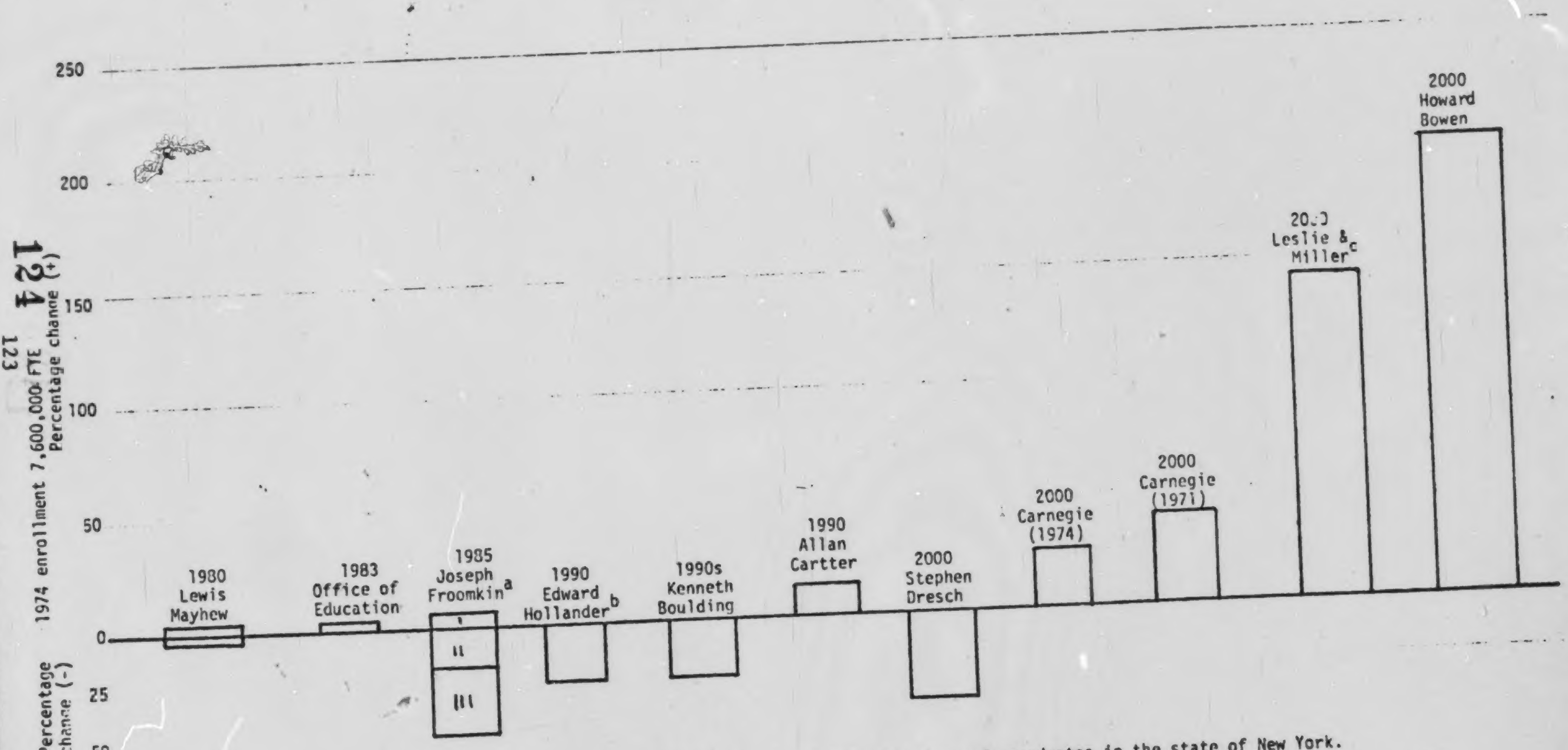
*The author is aware of the problems associated with use of the term "FTE enrollment", not the least of which is that the term does not have a singular meaning. No other data being available, however, the term is used here with the belief that any difference caused by its use will be minimal.

FIGURE 1. How different projections and possibilities for enrollment in higher education compare with the 1974 level of enrollment (percentage comparisons)



[a] Froomkin sets forth three "scenarios."

[b] Enrollment level for full-time undergraduates in the state of New York.

[c] Leslie and Miller assume that enrollment in higher education is linked directly to the rate of growth of the total gross national product. The Council has estimated the implied growth on the assumption that real GNP rises at an annual average rate of 3.5 percent a year from 1974 to 2000.

Source: More Than Survival: Prospects for Higher Education in a Period of Uncertainty, p.41.

TABLE 1

	GROSS NATIONAL PRODUCT	PERCENT CHANGE	EXPENDITURES[1]	PERCENT CHANGE	FTE ENROLLMENT	PERCENT CHANGE
1975	1,439.7*	3.0%	23,500**	10.6%	7,735,495**	2.7%
1974	1,397.4	7.9	21,240	10.6	7,529,434	2.8
1973	1,294.9	11.8	19,201	9.0	7,321,155	1.9
1972	1,158.0	10.2	17,616	15.7	7,186,867	1.3
1971	1,050.4	7.6	15,224	9.4	7,096,488	4.5
1970	976.4	4.9	13,911	13.0	6,790,509	6.4
1969	930.3	7.6	12,309	15.5	6,382,618	5.9
1968	864.2	8.9	10,658	16.5	6,024,199	8.8
1967	793.9	5.8	9,146	18.5	5,539,222	8.1
1966	749.9	18.7	7,717	33.1	5,126,005	20.6
1964	631.7	25.4	5,800	65.7	4,250,000	38.9
1960	503.7	-	3,500	-	3,060,000	-

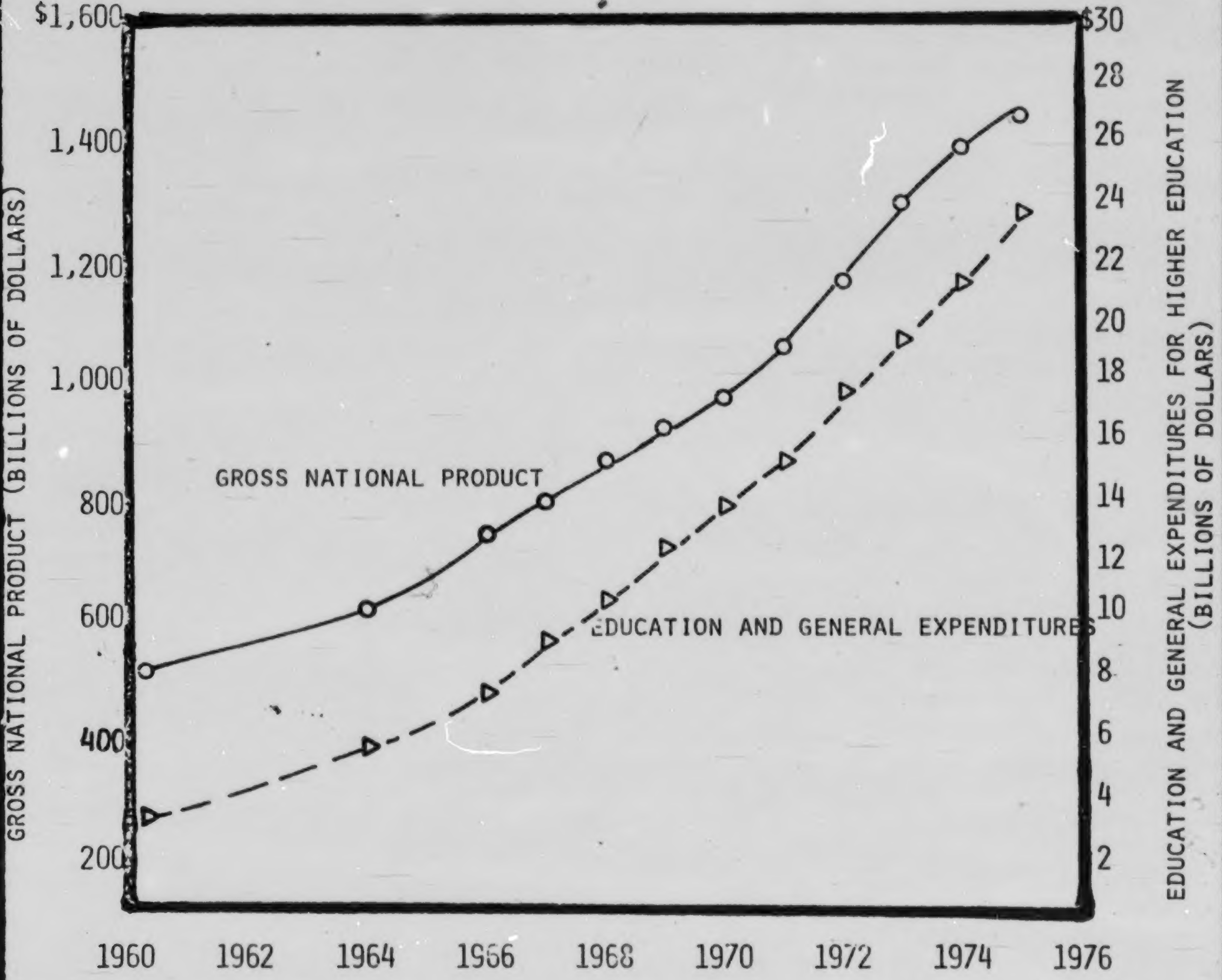
[1] CURRENT FUND EDUCATIONAL AND GENERAL EXPENDITURES FOR INSTRUCTION AND DEPARTMENTAL RESEARCH, EXTENSION, AND PUBLIC SERVICE, LIBRARIES, PHYSICAL PLANT MAINTENANCE AND OPERATION, AND GENERAL ADMINISTRATION AND STUDENT SERVICES.

*2ND QUARTER FIGURE

**ESTIMATED

SOURCE: Halstead, D. Kent, Statewide Planning in Higher Education, DHEW Publication No. (OE) 73-17002. United States Government Printing Office, Washington, D.C. 1974. p.536-7.; and Economic Indicators prepared for the Joint Economic Committee by the Council of Economic Advisors, U.S. Government Printing Office, Washington, D.C., August 1975, p.2.

FIGURE 2: GROSS NATIONAL PRODUCT AND EDUCATION AND GENERAL EXPENDITURES IN HIGHER EDUCATION



reductions in such states as Massachusetts, Pennsylvania, Virginia, and Wisconsin, it seems apparent that higher education in the United States must begin the arduous task of preparing for management in a period of economic decline.

Institutional Vitality - The Goal

Returning to the theme of this conference, "Coping in the 70's," it is recognized here that at this juncture coping in the 70's means adopting to and planning for retrenchment and decline. Because of pressures brought about by economic decline, institutional managers are required, in many instances, to identify and pursue only top priority programs rather than the wide range of activities commonly found in colleges and universities in the United States. Priorities must be selected by the institution and where consolidation or elimination of programs are proposed, defended on two grounds.

(1) The process by which priorities are defined; and

(2) The reasons and criteria used for selecting programs that are to be consolidation or elimination.

During periods of budget stringencies and retrenchments, managers must adopt as the primary institutional objective the maintenance of institutional vitality. During periods of financial crises, the objective of insuring and maintaining institutional vitality--especially vitality in programs that the institution considers important, must be closely adhered to or short-term decisions with negative long-term impacts may be made. Elements of institutional vitality that the Author considers important are listed below:

I. Ability to set goals, identify priorities, and make decisions.

II. High identification with common goals and priorities by all clientele.

TABLE 2: MAJOR CONSTRAINTS DURING RETRENCHMENT

CONSTRAINTS	MANIFESTATION
1. LEGAL	PERSONNEL CONTRACTS LABOR UNION CONTRACTS AFFIRMATIVE ACTION STATE LAWS
2. QUASI-LEGAL	AAUP GUIDELINES ADMINISTRATIVE GUIDELINES
3. ETHICAL	HIGHER EDUCATION PRACTICES STUDENT IN SYSTEM
4. ECONOMIC	BUDGET REDUCTIONS INFLATION LABOR CONTRACTS LABOR INTENSIVE INDUSTRY PHYSICAL SPACE
5. POLITICAL	CLIENTELE PERCEPTIONS ENROLLMENT POLICIES
6. ACADEMIC	ENTRENCHED PROGRAMS TENURE CONSIDERATIONS COLLEGIAL PROCESSES
7. PSYCHOLOGICAL	PROBLEM AVOIDANCE DISTRUST
8. INFORMATION	INADEQUATE INFORMATION SYSTEM

III. High quality faculty, students and staff.

IV. Equitable and humane personnel policies and practices.

V. Accurate, reliable and up-to-date information systems.

It is reasonable to assume that managers in colleges and universities try to plan and manage in a rational manner. However, many scholars, Boulding included, are of the opinion that managing in a period of retrenchment is much more difficult than managing in a period of growth. The Author also subscribes to that belief. Table 2 lists some constraints with which managers must deal during retrenchment. In periods of economic decline, these constraints are far more difficult than in period of growth and expansion.

In Table 2, there appear eight (8) major constraints that managers must face when encountering a period of retrenchment. Each of the constraints listed is important and at any given time during the process any single criteria listed may be the "most" important. Managers and practitioners should recognize however, that for the most part Items 1 through 7 are "political" in the sense that they are negotiable between various campus constituencies. Therefore, Item 8, information, is the cornerstone upon which success on the entire system depends. With this in mind, we turn to information requirements in periods of retrenchment.

Information For Decision-Making

Information about college and university programs and operations must be collected, analyzed and utilized at a variety of levels if the institution is to be successful. Figure 3 depicts levels of detail or aggregation of information required by various management, coordinating, and reporting units. The base of the triangle represents the institution and the most detailed level of information required. At the top of the triangle is the Federal Government, which should require the most aggregated information from the institutions. Other information gathering units are listed between these two extremes.

Table 3 lists some information requirements at the campus level. The data are divided into the major sections utilized by NCHEMS at WICHE and adopted by many colleges and universities around the country.

With data in Table 3 as a starting point, institutions may accurately assess campus operations and set the basis for future planning; however, in order to effectively plan for the future, these data and others must be aggregated and the institution must possess the ability to make assumptions and rapidly assess the impacts of these assumptions. A simulation model, University Micro-Analytic Simulation System (UMASS), has been developed with just this purpose in mind.

Summary

A case has been made for managers in colleges and universities to begin planning for retrenchment. Critical constraints have been noted and an information system developed for long-range planning has been explained.

INFORMATION FOR DECISION-MAKING

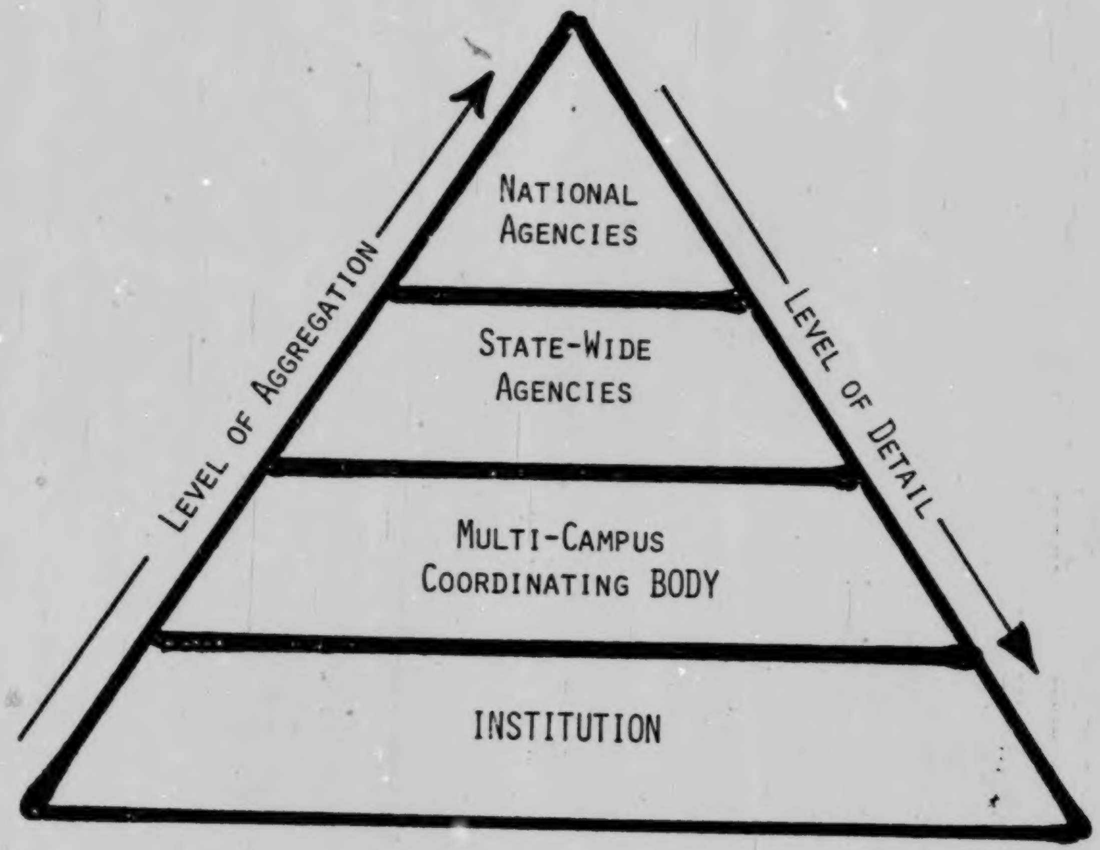

NATIONAL AGENCIES
STATE-WIDE AGENCIES
MULTI-CAMPUS COORDINATING BODY
INSTITUTION
LEVEL OF AGGREGATION
LEVEL OF DETAIL

FIGURE 3: THE LEVEL OF INFORMATION TRIANGLE

TABLE 3: CAMPUS LEVEL INFORMATION REQUIREMENTS

STUDENT

- APPLICATIONS
- ENROLLMENTS
- MAJORS
- SEX AND ETHNIC STATUS
- TUITION AND FEE CHARGES
- ECONOMIC STATUS

FACULTY

- NUMBER OF FACULTY
- PERCENT TENURED
- RANK AND AGE DISTRIBUTION
- SALARIES
- WORKLOADS

PART-TIME

- FULL-TIME RATIO
- AFFIRMATIVE ACTION

FINANCIAL

- CURRENT INCOME/EXPENDITURES
- PROJECTED INCOME/EXPENDITURES
- COSTS PER STUDENT
- COSTS PER CREDIT/COURSE
- FINANCIAL AID

COURSES

- AVERAGE SECTION SIZES
- FREQUENCY OF OFFERINGS
- CURRENT TECHNOLOGY
- CREDIT VALUES

FACILITIES

- UTILIZATION RATES
- MAINTENANCE COSTS
- HEATING/UTILITY COSTS
- ADEQUACY OF SPACE

PRINCIPLES UNDERLYING U/MASS

1. SITUATION ANALYSIS
2. REALITY LINK
3. RAPID ITERATION
4. INSTRUCTIONAL COST INDEX (ICI)
5. CASCADING INFORMATION

REALITY LINK

FIRST YEAR (INITIAL DATA BASE) IS ACTUAL DATA BASED ON KNOWN VALUES; E.G., STAFFING, BUDGET, ENROLLMENTS ARE CURRENT YEAR VALUES.

RAPID ITERATION

INITIAL DATA BASE — PLANNING VECTOR (1) — DATA VECTOR (YEAR 2)

$$(V_{11}, V_{12}, \ldots, V_{1n}) \begin{pmatrix} P_{11} & & & 0 \\ & P_{12} & & \\ & & \ddots & \\ 0 & & & P_{1n} \end{pmatrix} = (V_{21}, V_{22}, \ldots V_{2n})$$

DIMENSIONS OF U/MASS

5 TIME PERIODS (YEAR 1-5)

2 STUDENT LEVELS (GRADUATE, UNDERGRADUATE)

20 ACADEMIC UNITS (SCHOOLS AND COLLEGES)

-- NON-ACADEMIC UNITS (ADMINISTRATIVE AND SUPPORT)

13 INPUT/OUTPUT VARIABLES

12 OUTPUT MEASURES

INSTRUCTIONAL COST INDEX (ICI)

$$\text{ICI} = \frac{\text{DIRECT INSTRUCTIONAL EXPENSE}}{\text{CLASS SIZE} \times \text{LOAD} \times \text{NO. OF FACULTY}}$$

INPUTS AND OUTPUTS

NUMBER OF PERSONNEL	*FACULTY
	*TEACHING ASSISTANTS
	*PROFESSIONAL STAFF
	*CLASSIFIED STAFF
AVERAGE ANNUAL SALARY	*FACULTY
	*TEACHING ASSISTANTS
	*PROFESSIONAL STAFF
	*CLASSIFIED STAFF
INSTRUCTION STATISTICS	INSTRUCTIONAL FTE STUDENTS
	*STUDENT CREDIT HOURS
	*COURSE CREDIT HOURS
	*RELATIVE FACULTY EFFORT
	AVERAGE CLASS SIZE
	AVERAGE FACULTY LOAD
	AVERAGE STUDENT LOAD (*)
COST DATA	*SUPPORT EXPENSE
	PERSONNEL EXPENSE
	TOTAL COST
	INSTRUCTIONAL COST INDEX
RATIO INDICATORS	STUDENT/FACULTY
	INSTRUCTIONAL SUPPORT $/FACULTY
	DEPT. SUPPORT EXPENSE $/FACULTY
	CLASSIFIED STAFF/FACULTY
	TEACHING ASSISTANTS/FACULTY

*INPUT FROM INITIAL DATA BASE, ALL OTHERS COMPUTED FROM INPUT DATA

ALTERNATIVE OUTPUT FORMATS

FOR EACH SIMULATION RUN, A SUMMARY OUTPUT AND THE OPTION TO SELECT ONE OR MORE OF THE FOLLOWING REPORTS:

FOR ANY SELECTED:	YOU MAY ARRAY:
1. LEVEL OF INSTRUCTION AND YEAR	1. EACH VARIABLE FOR ALL ORGANIZATIONS
2. LEVEL OF INSTRUCTION AND ORGANIZATION	2. EACH VARIABLE FOR ALL YEARS
3. LEVEL OF INSTRUCTION AND VARIABLE	3. THE VALUE IN EACH ORGANIZATION FOR ALL YEARS
4. VARIABLE AND ORGANIZATION	4. THE VALUE FOR EACH LEVEL OF INSTRUCTION FOR ALL YEARS
5. ORGANIZATION AND YEAR	5. EACH VARIABLE FOR ALL LEVELS OF INSTRUCTION

UNIVERSITY OF MASSACHUSETTS/AMHERST

ICI Implementation
Test Case

Situational Analysis: Resource inputs are reduced to a level that require significant reductions in expenditures in academic areas.

Constraints:
1. Reductions to occur over next 5 years.
2. Only across-the-board reductions possible in FY 76.

Decision: ELIMINATE SCHOOL OF ENGINEERING

ASSUMPTIONS

1. ALL UNITS AFFECTED IN FY 76.
2. REDUCTIONS APPLY ONLY TO SCHOOL OF ENGINEERING IN FY 77, FY 78, AND FY 79.
3. STUDENT ENROLLMENT TO REMAIN RELATIVELY CONSTANT.
4. STUDENT ENROLLMENTS AND STUDENT CREDIT HOURS WILL INCREASE IN OTHER SCHOOLS/COLLEGES IN PROPORTIONS THAT REFLECT CURRENT ENROLLMENT DISTRIBUTIONS.
5. CURRENT RESOURCE BASE WILL NOT BE EXPANDED; THEREFORE, SAVINGS WILL COME FROM ELIMINATION OF ENGINEERING SCHOOL.

IMPLICATIONS

- TENURE AND RETENTION POLICIES
- FACULTY WORKLOADS
- ICLM
  - STUDENT LOADS
  - LOAD DISTRIBUTIONS
  - COURSE OFFERINGS
- ACADEMIC SPACE
- ENROLLMENTS

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2. Kenneth E. Boulding in AGB Reports, Association of Governing Boards of Universities and Colleges, September, October, 1975. pp. 5.

3. The Chronicle of Higher Education, September 22, 1975.

4. William Baumal. "Macroeconomics of Unbalanced Growth." American Economic Review, 1967, 57(3).

CHANGES IN PERSONALITY AND ACADEMIC APTITUDE PATTERNS IN THE ATTRITION PROCESS AND THEIR IMPLICATIONS FOR INSTITUTIONAL RESEARCH

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More than a decade ago, Summerskill (1962) reported that nationwide attrition rates had held more or less constant at about 50 per cent over the preceding half-century. Astin (1975) reported a national attrition rate of 49.6 per cent in a longitudinal study of students who entered higher education as freshmen in the fall of 1968. But even while the national rate may be relatively stable, increasing institutional costs and declining enrollments are forcing colleges and universities to scrutinize student attrition more closely than ever.

After an extensive review of the literature on attrition, Tinto (1975) concluded that "much remains unknown about the nature of the dropout process," largely because of "two major shortcomings; namely, inadequate attention given to questions of definition and to the development of theoretical models that seek to explain, not simply to describe, the processes that bring individuals to leave institutions of higher education" (p.89).

The research reported here sought to test a portion of one theoretical model which might be used to explain student attrition. This theory, developed by the late George Stern (1970), is a needs-environmental press model based on the work of Henry Murray. Essentially, Stern's theory views an individual's personality needs and the environment he inhabits as co-determinants of behavior.

The research reported here is part of a larger effort to assess the usefulness of Stern's theory--and the instruments developed to operationalize it: the Activities Index (AI) and College Characteristics Index (CCI)--for predicting student attrition. The generalized question was: Can personality needs, expectations of the environment a student is about to enter, or the dissonance between needs and expectations be used to predict attrition at a large, private university. Needs and expectations data were supplemented by scores on the Scholastic Aptitude Tests (verbal and quantitative).

The initial step in the larger effort was an attempt to determine if personality needs alone (or in combination with academic aptitude) could be used to discriminate between students who completed a baccalaureate program in four years and those who withdrew.

In the research on the utility of personality and academic aptitude measures in predicting attrition, Chambers, Barger and Lieberman (1965), Hanson and Taylor (1970), and Morgan (1974) reported results indicating that when personality and aptitude measures are used, the latter have the greatest power for distinguishing between students who drop out and those who do not. Each of these studies employed discriminant function analysis, and for each the most potent function comprised largely cognitive-related variables. Morgan (1974) found that personality variables contributed some discriminating power, but that without academic aptitude measures, they could not distinguish among various groups of persisters and dropouts.

Elton and Rose (1967) studied transfer students at the University of Kentucky and concluded that "personality differences distinguish the choice of college to which students go after deciding to leave [the

School of] Engineering" (p. 913). Rose (1965), using the Omnibus Personality Inventory, selected Rotter scales and the American College Testing Service's ACT Composite scores in a discriminant function analysis, obtained statistically non-significant results for the total battery of scores, although several personality variables generated statistically significant univariate F-ratios. In nearly all studies, students who withdrew appeared to be more aggressive, impulsive, and independent than those who did not drop out.

Method

Instruments

Students declaring their intention to becoming freshmen at Syracuse University (a private institution of 10,000 undergraduates and 5,000 graduate students in central New York state) are asked to complete the Activities Index (AI) and College Characteristics Index (CCI), developed by George G. Stern (1970). The AI is a personality inventory, measuring personality needs; the CCI is an environmental measure which, when completed prior to attendance at an institution, can be interpreted to reflect a student's expectations of what the institutional environment will be like. Completed after a period of attendance, the CCI is interpretable as a measure of the individual's perceptions of the "reality" of the institution's environment.

The research reported here is based on analyses of the responses to the Activities Index of a random sample of students entering Syracuse University as freshmen in the fall of 1970. The verbal and quantitative portions of the Scholastic Aptitude Test (SAT) were used as measures of subjects' academic aptitudes.

The 12 AI factors (which are interrelated in a circular, or recurring, sequence) and the scales on which they are based are as follows:

1. Self-Assertion: Ego Achievement, Dominance, Exhibitionism, Fantasied Achievement.
2. Audacity-Timidity: Risktaking, Fantasied Achievement, Aggression, Science.
3. Intellectual Interests: Reflectiveness, Humanities-Social Sciences, Understanding, Science.
4. Motivation: Achievement, Counteraction, Understanding, Energy.
5. Applied Interests: Practicalness, Science, Order.
6. Orderliness: Conjunctivity, Sameness, Order, Deliberation.
7. Submissiveness: Adaptability, Abasement, Nurturance, Deference.
8. Closeness: Supplication, Sexuality, Nurturance, Deference.
9. Sensuousness: Sensuality, Narcissism, Sexuality.
10. Friendliness: Affiliation, Play.
11. Expressiveness-Constraint: Emotionality, Impulsiveness, Exhibitionism, Sexuality.
12. Egoism-Diffidence: Narcissism, Fantasied Achievement, Projectivity.

Sample--General

For the overall study (only a portion of which is reported here), a simple random sample of 600 was drawn by computer from the 1,693 students who declared their intention to enroll as freshmen at Syracuse University in the fall of 1970 and for whom SAT scores were available. More freshmen had completed the AI and CCI than the SAT's, but the availability of SAT scores was used for sampling to minimize the number of cases discarded because of incomplete data. The AI and CCI data were "long form" scores (a "short form" was developed in 1972), which were then transformed to "short form" scores so as to be comparable with similar analyses of later students.

Of the 600 in the original sample, 11 cases were duplicates; 30 cases had incomplete AI or CCI data, and 1 student had died; these 42 cases were dropped from the sample. A search of academic records also revealed that 2 males and 5 females who had completed the AI and CCI never registered at Syracuse; these 7 cases were also excluded from the analyses. Thus, there were 551 usable cases for the overall study: 288 males and 263 females. Chi-square tests for "goodness-of-fit" indicated that the subjects were representative of the population from which they were drawn with respect to sex and college of initial enrollment.

Each subject was then classified into one of the following groups (the number of men and women in each group is in parentheses):

Completers--students who had completed a baccalaureate degree program by August, 1974 (m=155; f=174);

Drop-Passing--students who withdrew from the university in good academic standing--cumulative grade-point average $\geq$ 2.0 on a 4-point scale (m=58; f=63);

Drop-Failing--students who withdrew in poor academic standing--cumulative grade-point average $<$ 2.0 (m=39; f=11);

Persisters--students who had registered for eight consecutive semesters, but who had not completed the degree requirements by August, 1974 (m=10;; f=5);

Stop-Outs--students who had interrupted their academic careers at some point, but who were registered during the fall, 1974 semester (m=26; f=10).

Sample--Specific

Because the personality structures of males and females, as measured by the Activities Index, differ, it was necessary to analyze the data on males and females separately. Further, because of the convention that there be at least three subjects in each group for each variable in the analysis, those females classified as drop-failing (n=11) and all subjects classified as persisters (m=10; f=5), or stop-outs (m=26; f=10) were excluded from the analyses.

Thus, the analyses for males were done on the following three groups: completing (n=155), drop-passing (n=58), and drop-failing (n=39) students. Analyses for females were done on completing (n=174) and drop-passing (n=63) students.

Analysis

The 12 AI factors and two SAT scores for males and for females were employed as the predictor variables and entered in a stepwise fashion into a multiple group discriminant function analysis (Tatsuoka, 1971). Discriminant function analysis is a multivariate extention of univariate analysis of variance, treating the multiple predictor variables in a systemic fashion, rather than separately. It is predicated on the fact that certain variables, treated separately, may not be able to discriminate among groups, but in company with other variables they may contribute to the discriminating power of the test battery. A stepwise solution yields a reduced set of predictor variables which optimally differentiates among groups of subjects.

The criterion for controlling the stepwise selection of variables for inclusion in the analysis was the minimization of Wilks' lambda.

The minimum F-ratio to enter the analysis was set at 1.0. Analysis also included chi-square tests of the significance of the discriminating power of each function (since more than one function can be developed when there are more than two groups in the analysis) and a classification procedure by means of which each subject is classified according to which group his measurement scores most resemble. Classification serves as a check on the discriminating power of the test battery. For classification purposes, prior probabilities were set equal (males = .3; females = .5).

Computer analyses were made using "Subprogram Discriminant" from the *Statistical Package for the Social Sciences* (Nie, *et al*., 1975).

Results

In the discriminant analysis of the data for males, nine predictor variables emerged from the stepwise solution and yielded a Wilks' Lambda of .858, which is approximated by an F-ratio of 2.12 (d.f.=18 and 482), statistically significant at the .005 level. This result indicates that it is possible to differentiate among completing, drop-passing, and drop-failing male students using SAT scores and the twelve factors of the Activities Index. When only the AI factors were entered into the stepwise analysis, however, two variables emerged, yielding a Wilks' Lambda of .964, approximated by an F-ratio of 2.31 (d.f.=4 and 496), which barely failed to achieve statistical significance ($p < .056$).

Analysis of the female completers and drop-passers yielded a Wilks' Lambda of .969 (four variables emerged), approximated by a statistically non-significant F-ratio of 1.83 (d.f.=4 and 232). It is thus impossible to reject the null hypothesis that there are no significant differences, as measured by the AI factors and SAT scores, between undergraduate women who complete a baccalaureate degree program in four years and those women who withdraw from the university in good academic standing. These results obviated any further analyses of females on these variables and, consequently, the remainder of this paper will concentrate on the differences among the male groups. (Data on female subjects are available from the author upon request.)

Table 1 displays the three male group means, standard deviations, and univariate F-ratios for each of the fourteen predictor variables. A statistically significant univariate F-ratio was obtained on only one variable, the Self-Assertion factor of the Activities Index. Completers scored highest of the three groups on this dimension, followed by drop-failing students. A post hoc comparison of group means on this factor, using the Scheffé method (Hays, 1963, pp.483-84), indicated that the principal source of variance identified by the univariate F is attributable to the mean difference between completers and drop-passing students. The difference between drop-passing and drop-failing students was not statistically significant.

The results of the stepwise discriminant analysis of the three male groups are shown in Table 2. As noted, nine of the fourteen predictor variables entered the analysis with an F-to-Enter $>$ 1.0. The statistical significance of the two functions based on these nine variables was assessed using a form of Bartlett's test: $V_m = [N-1-(p+k)/2] \ln(1+\lambda_m)$, where N is the total number of subjects, p is the number of variables, k is the number of groups, ln is the natural logarithm, and λ_m is that non-zero eigenvalue, of the $W^{-1}B$ matrix,

TABLE 1

MALE GROUP MEANS, STANDARD DEVIATIONS, AND UNIVARIATE F-RATIOS FOR 2 SAT AND 12 AI VARIABLES

	Completers (n=155)		Drop-Passing (n=58)		Drop-Falling (n=39)		Univariate
Variable	Mean	S.D.	Mean	S.D.	Mean	S.D.	F-Ratios[a]
SAT:							
Verbal	555.21	78.56	570.96	78.78	550.02	83.79	1.06
Math	616.68	66.11	594.60	78.94	616.62	68.60	2.13
AI FACTORS							
Self-Assertion	5.65	2.47	4.67	2.72	5.44	2.22	3.26*
Audacity-Timidity	5.66	2.20	5.34	2.50	6.02	2.76	.98
Intellectual Interests	6.01	2.92	5.29	3.12	5.51	3.14	1.35
Motivation	6.57	2.35	6.83	2.38	6.28	2.88	.58
Applied Interests	5.47	2.94	5.09	2.85	5.67	2.98	.53
Orderliness	3.93	2.71	3.33	2.89	3.36	3.07	1.31
Submissiveness	5.88	2.26	6.19	2.18	6.23	2.33	.61
Closeness	5.42	2.18	4.90	2.46	5.20	2.17	1.16
Sensousness	4.70	2.39	4.10	2.41	4.49	2.02	1.39
Friendliness	6.55	2.52	6.34	2.72	5.97	2.60	.79
Expressiveness-Constraint	3.76	2.26	3.50	2.59	3.90	2.31	.39
Egoism-Diffidence	5.50	2.63	4.62	2.49	5.33	2.98	2.34

[a] Degrees of Freedom = 2 and 249.

* $p < .05$

which corresponds to the m^{th} discriminant function being tested. V is distributed approximately as chi-square with (p+k-2m) degrees of freedom (Tatsouka, 1971, pp. 164-165).

The first discriminant function in the analysis achieved an approximate chi-square of 25.294 (d.f. = 10, $p < .005$) and explained 71 per cent of the variance. The approximate chi-square of the second function was not significant (11.838, d.f. = 8).

While only the Self-Assertion factor was able to discriminate among the three groups without the assistance of other variables (it had the only significant univariate F-ratio; see Table 1), inspection of the data in Table 2 indicates that the nine variables entering the stepwise analysis contributed some information to help explain the variance in the predictor variables. Only two variables, however--Self-Assertion and Audacity-Timidity--made significant incremental contributions in the discriminating power of the function. This is evidenced by the amount of change in Rao's V statistic attributable to those two variables (see Table 2).

Examination of the univariate F-ratios, the amount of change in Rao's V statistic attributable to each variable, and the standardized discriminant weights indicates that three AI factors--Self-Assertion, intellectual interests, and Audacity-Timidity--contributed the most to the discrimination among the three groups of males. Male completers scored highest of the three groups in Self-Assertion and Intellectual interests and second highest in Audacity. Drop-passing males scored lowest on all three dimensions. Interestingly, neither of the SAT scores appears to have made much contribution to the differentiation among the

TABLE 2

STEPWISE SELECTION OF PREDICTOR VARIABLES FOR DISCRIMINANT ANALYSIS

Step	Variable	Wilks' Lambda	Approx. F^a for Test of Lambda	Change in RAO's V^b	Standardized Weights
1.	Self-Assertion	.974	3.26^{*}	6.52^{*}	-.14
2.	SAT-Verbal	.962	2.45^{*}	3.41	.11
3.	SAT-Math	.944	2.42^{**}	4.92	-.12
4.	Orderliness	.932	2.20^{*}	3.24	-.10
5.	Motivation	.921	2.06^{*}	3.13	.12
6.	Intellectual Interests	.908	1.99^{**}	3.69	-.24
7.	Audacity-Timidity	.881	2.28^{***}	8.10^{**}	.16
8.	Submissiveness	.869	2.20^{***}	3.65	.08
9.	Friendliness	.858	2.12^{***}	3.10	.01

(F TO ENTER FOR REMAINING VARIABLES < 1.0)

---

[a] Degrees of freedom range from 2/249 on step 1 to 18/482 on step 9.

[b] Indicates the increase in discrimination attributable to that variable.

$^{*}p < .05$

$^{**}p < .025$

$^{***}p < .01$

males groups.

The fact that drop-failing students more closely resemble completers than do drop-passing students is evidenced by the relative position of the group centroids, shown in Table 3. The centroid value for the drop-failing students places them almost precisely between the completers and the drop-passing students on the only statistically significant discriminant function.

TABLE 3

GROUP CENTROIDS ON FIRST DISCRIMINANT FUNCTION

Group	Centroid
Completers	-.06
Drop-Passing	.13
Drop-Failing	.03

The matrix of multivariate F-ratios, shown in Table 4, indicates that only the difference observed between completers and drop-passing students are statistically significant.

TABLE 4

MULTIVARIATE F-MATRIX FOR PAIRS OF CENTROIDS[a]

	Completers	Drop-Passing
Drop-Passing	2.99***	
Drop-Failing	1.53	1.49

[a] Degrees of Freedom = 9 and 241

***$p < .01$

The results of the classification analysis are displayed in Table 5; the number of subjects correctly classified in each group is underlined.

TABLE 5

RESULTS OF CLASSIFICATION TEST
BASED ON TWO DISCRIMINANT FUNCTIONS[a]

	Predicted Group[b]			% Correctly Classified
Actual Group	Completers	Drop-Passing	Drop-Failing	
Completers (n=155)	77	38	40	49.7%
Drop-Passing (n=58)	13	31	14	53.4%
Drop-Failing (n=39)	7	11	21	53.8%

Overall percentage correctly classified = 51.2%.

[a] Second function statistically non-significant.

[b] Prior probabilities for classification set equal (.333).

These findings indicate that while the discrimination among the three groups may be statistically significant, considerable overlap exists, as evidenced by the only moderate accuracy in classifying members of each group. Overall, 51.2 per cent of the subjects were correctly classified in the groups to which they actually belong.

Discussion

Although the distinction among the three male groups, according to the measures used in this study, are not decisive, the findings indicate that Scholastic Aptitude Test (SAT) math and verbal scores and Activities Index (AI) factor scores, together, can differentiate among undergraduate males grouped according to whether they completed a baccalaureate degree program in four years or less, left the institution in good academic standing, or left in poor academic standing. No statistically significant differences were observed between women students who completed their degrees in four years and those who withdrew in good academic standing. If real differences between the female groups do in fact exist, the measures used in this study were unable to detect them.

The largest single difference among males, that between completers and those who withdrew in good academic standing, was on the Self-Assertion factor of the AI, with completers scoring highest and drop-passing students lowest. "This factor reflects a need to achieve personal power and sociopolitical recognition. It is based on items that emphasize political action, directing or controlling people, and the seeking of roles likely to receive considerable group attention" (Stern, 1970, p. 50).

The Intellectual Interest factor of the AI was a second principal contributor to the discriminating power of the one significant function, completers again scoring highest and drop-passing students lowest. "The scales with the highest loadings on this dimension are based on items involving various forms of intellectual activities, the arts as well as the sciences, the empirical as well as the abstract" (Stern, 1970, p. 50).

The Audacity-Timidity factor of the AI was a third major contributor to the separation among the male groups. "This factor involves an orientation that is more personal and less social than [the Self-Assertion factor]. The emphasis here is on skill and aggressiveness in physical activities as well as in interpersonal relationships" (Stern, 1970, p. 50). Drop-Failing students scored highest on this dimension and the drop-passing group scored lowest.

A substantial body of previous attrition research has suggested that withdrawers--especially those in good academic standing--tend to be more aggressive, more resistant to authority, and more intellectually inclined than students who remain in school. In this study, however, these characteristics are more appropriate descriptors, for male students at least, of those who completed their baccalaureate degrees on time. Male completers in this study scored highest of the three groups in Intellectual Interest and Self-Assertion, and second highest in Audacity. Males who withdrew in good academic standing scored lowest of the groups on these same three dimensions.

Furthermore, and again in contrast with a number of similar studies, the results of this investigation indicate that academic aptitude variables may not be the most useful variables for estimating the attrition rate in a given entering class. Indeed, the results of this study suggest that certain personality dimensions measured by the Activities Index may have more discriminating power than either of the SAT scores.

Because of the *ex post facto* nature of this study, and because the results are derived from a single class in a single institution, it is neither valid to assert causal relationships nor possible to make inferences to other classes or institutions. Given that caveat, however, if the results of this study are not idiosyncratic--if similar phenomena are occurring on other campuses--then this study has several speculative implications for institutional researchers at those institutions.

1. The Personality-Based Sources of Attrition May be in Flux. At least with respect to attrition research at Syracuse University, the results of this study represent not merely a shift in emphasis from the findings of previous research, but a virtual reversal of earlier findings. Dresser (1971), also using the Activities Index, reported a study of attrition in the College of Arts and Sciences at Syracuse, and while his population was limited to a single college (the largest one) within the university, his findings are generally consistent with earlier studies at other institutions. In Dresser's study, male leavers in good academic standing scored higher in Intellectual Interests, Motivation, and Audacity than did persisters. In the study reported here, however, male completers scored higher on two of those factors (Intellectual Interest and Audacity) than did students who withdrew in good academic standing. Dresser also reported that female leavers in his study were higher than persisters in Intellectual Interests and lower in Motivation, Closeness, Sensuousness, and Friendliness. No such differences were observed among the females in this study; in fact, neither univariate nor multivariate analyses of variance showed statistically significant differences among women who complete a degree program and those who withdrew in good academic standing.

It is, of course, possible that Syracuse University students differ in important ways from those attending other institutions and upon whom much of the previous attrition research is based. The generally close correspondence between Dresser's results and those of contemporary researchers at other institutions, however, tends not to confirm that hypothesis.

A more likely possibility, given the fact that the bulk of the available personality-based attrition research was completed prior to 1970, is that the nature of the student body at Syracuse--and quite conceivably at other institutions--is undergoing a change. There is evidence available on Syracuse's entering freshmen to suggest that this, in fact, is the case, but the differences which are observable between Syracuse freshmen who entered in 1969 and in subsequent years are not statistically significant.

If subsequent research at Syracuse and other institutions confirms that the students now entering higher education have personality structures which differ in important ways from those of students who attended our institutions in the 1960's, then enrollment projection models which utilize attrition-related personality information on entering students may be going progressively out of date.

2. Personality Data, Alone, is Insufficient for Reliable Prediction. The findings of this study also indicate that information on the personality composition of members of an entering class cannot be used to predict attrition reliably. The classification analysis portion of this research yielded a moderate proportion of correct classifications of male students in each of the three groups. But the correct classification of a portion of those cases can be attributed to the fact that the classification procedure involved the use of the same subjects whose scores had been used to derive the discriminant function. If an independent sample of students had been used to cross-validate the discriminant function, it is doubtful that the level

of predictive accuracy would be as high as that obtained and reported in this study.

Furthermore, when the AI variables were used without the assistance of the SAT scores, the observed differences among the three male groups failed to reach statistical significance.

With or without academic aptitude data on the group members, the degree of overlap among the three male groups--indicated by a canonical correlation of .32 for the only statistically significant discriminant function, as well as by the moderate accuracy in classifying each subject in the proper group--indicates that personality variables do not have the discriminatory power to warrant their use in prediction models unless they are supplemented by other information.

3. Analyses of the Institutional Environment (and its Interaction with Personality) May Be More Productive in Predicting Attrition. A third--and perhaps the most plausible--hypothesis to explain the results of this study is that the Syracuse environment has changed sufficiently to alter the personality-based sources of attrition among both males and females. Curricular and program changes instituted since Dresser completed his study include the addition of a Selected Studies Program, under which students design a program of study tailored to their particular academic interests. An instructional development unit was established and has contributed to several substantial changes in large, freshman year courses,[1] as well as in other, smaller courses available to students in all classes. Independent study courses were

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[1] It is worth noting that, in this study, 50 per cent of the males and 47 per cent of the females who withdrew did so at or before the end of the freshman year.

made more accessible in several of the colleges; the residence halls were opened to 24-hour visitations, and other social regulations were tempered. A previously all-faculty legislative body evolved into a university senate with student, faculty, and administrative representatives, and students were added to virtually all university committees (including faculty promotions and tenure committees). It may well be that the cumulative effect of these changes, introduced over three or four years, has been sufficient to produce an institutional ambience more hospitable to intellectually oriented, personally autonomous students--the ones Dresser, using pre-1968 data, found to be dropping out of the university in good academic standing.

If further research indicates that the primary source of variance between the results of this study and other attrition research lies in the effects of institutional changes on the sources of attrition--that alterations in institutional policies and programs can have measurable impacts on the nature, and perhaps the rate, of attrition--then institutions which rely heavily on high enrollment levels and the consequent tuition dollars have reason for some measure of optimism. Institutional research might profitably undertake studies to identify those areas of the institutional climate which are most closely related to attrition. Student attrition may not be a phenomenon totally beyond an institution's ability to control.

4. Academic Aptitude Variables May Not Be the Most Powerful Predictors of Attrition. Chambers and Barger (1965), Morgan (1975), and others have reported that academic aptitude variables contribute more to the discrimination between leavers and stayers than do personality

variables. The results of this study suggest, however, that academic aptitude variables may not be the most powerful discriminators for predicting attrition. Indeed, the results of this study indicate that certain personality dimensions tapped by the AI may have more discriminating power than either of the SAT scores. Neither SAT variable produced a statistically significant univariate F, made a significant contribution to the change in Rao's V statistic, nor produced a standardized discriminant weight of sufficient size to indicate that it was a major contributor to the discriminating power of the only statistically significant function.[1] The combination of AI and SAT data could discriminate among male groups at a statistically significant level, but neither, in the absence of the other, was able to differentiate among the groups.

To be sure, several of the studies alluded to above employed the academic aptitude measures developed by the American College Testing Service. But given that fact, the findings of this study suggest that it is entirely possible that the relative contributions of academic aptitude and personality variables is functionally related to the particular measures chosen for each study, rather than to any discriminating power inherent in either set of variables. It may well be that certain personality inventories are more powerful than certain academic aptitude measures, and in future studies careful attention should be given to instrument selection.

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[1] Furthermore, for males and females who completed, dropped-passing, or dropped-failing, SAT-verbal correlated .30 with cumulative grade-point average; SAT-math correlated .11 with cumulative GPA.

The results of this investigation are part of a larger study undertaken with two principal purposes: 1) to identify those personality and environmental expectation variables which are closely related to attrition and on which information is available to Syracuse University for each entering freshmen class, and 2) using those variables, to develop an attrition prediction equation on the basis of which the university might, for enrollment projection purposes, estimate at a better-than-chance rate what proportion of an entering class can be expected to complete a baccalaureate degree program in four years. The study reported here assessed the predictive utility of personality variables (as measured by Stern's Activities Index) and academic aptitude variables (operationally defined as scores on the verbal and quantitative portions of the Scholastic Aptitude Tests).

Male students who completed a baccalaureate degree in four or fewer years were found to be more self-assertive and to have stronger intellectual interests than males who withdrew in good, or in poor, academic standing. No statistically significant differences were observed between females who completed a degree and those who withdrew in good academic standing.

The findings indicate that the personality-based sources of attrition may be undergoing a change: characteristics previously found to be typical of academically successful withdrawers now appear to be more appropriate descriptors of male students who complete a degree program. The evidence also suggests, however, that personality information has limited utility for predicting attrition reliably. The few and moderate differences among male groups (and the absence of significant observable differences between female groups) suggest that environmental dimensions--

and their interactions with personality--may be a more fecund area for attrition research. Given the *ex post facto* nature of the research reported here, the possibility of changes in the institutional climate interacting with students' personalities cannot be rejected as a competing explanation for the differences observed in this study.

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STATE EDUCATION AGENCY AND CAMPUS RESEARCH COOPERATION

James J. McGovern
Connecticut Commission for Higher Education

Three Reasons for Cooperation

One reason for cooperation is to avoid duplication. The Northeastern Association for Institutional Research (NEAIR) can serve as a clearinghouse, network and forum among researchers of all types. The wide divergence of memberships is what makes it so valuable; yet, there are enough members having the same types of jobs to make comparisons.

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There are, however, a number of other dimensions requiring cooperation besides the avoidance of duplication. For instance, policies enacted by the state legislature or state coordinating agencies have serious repercussion throughout the system of public and private education. Indeed, actions in one state often affect colleges in neighboring states. Therefore, it is important to have informal discussions among researchers. The legislative research department in Connecticut continues to ask the state commission for information on subjects such as the number of students in teacher training. Thus, it is appropriate to have an almost constant dialogue concerning the subtlety involved in the definitions of such things as education majors, state certificates in education, etc. We would also like to identify experts on the campuses for various aspects of higher education.

At the state commission, we are also in contact with similar groups in other states. We are most interested in comparable data from New York and other New England states, as these states most affect us. An organization, like NEAIR, can be helpful if it provides a forum where the state and campus researchers can meet and discuss the "hidden variables" contained in the reports and tables used so frequently within and between states. Legislators and central offices cannot wait for complete verification of data. They must act and use whatever data is available.

Besides avoiding duplication and developing better policies, the other benefit of cooperation is to improve the efficiency and effectiveness of local research. The last may be most important. Many times the central agency has the state or national data which would give further substance to the trend analysis or development of alternate policies being formulated by a particular institution. If the central agency and the colleges compare notes on a regular basis, information and concerns which are not even realized can come to light. In other words, campuses or central coordinating agencies may not know what the big problems are unless they have contact with one another.

The above section was illustrative only, and, so too, the following two sections will only indicate some of the measures and methods that are important for analysis from at least two perspectives.

Current Facts Important to Research

The first two figures found at the end of this paper give the birthrate and the high school graduation rate for the United States, New York, and Connecticut. This gives substance to the possibility that things will be different in the 1980's and that we have only a few years to prepare for these large changes. Figure 3 gives the picture of enrollment growth in Connecticut in the 1960's and the first half of the 1970's. A quick comparison of these first three figures indicates that just as we prepared for growth in the 60's (new dormitories, hiring, etc.), so too, the changes in the 1980's will require large-scale preparations.

Figure 4 indicates that there are several economic factors that will complicate our analysis. For instance, Figure 4 shows that the national increase in faculty compensation went up from 5% to 6% between 1973 and 1974 but the actual change in purchasing power for the faculty went down 2% or more. Figures 5 and 6 indicate where some limited growth may be developing and thereby suggests rearrangements in our faculty assignments and departmental organizations. Finally, Figure 7 indicates a number of enrollment projections for the 1980's, all of what are pessimistic. It is not until near the year 2000 that optimism appears in the majority.

Some particular facts from Connecticut may give a more precise picture of some of the things that are happening. In Connecticut, the estimated drop in our high school graduates between 1981 and 1992 is from 49,500 to 31,300, or 37%. The percentage of high school graduates continuing into postsecondary education has decreased from 1971 to 1974 for public high schools by 7% and for non-public high schools by 8%. We also have a large out-migration of these high school graduates to other states: 36% from public high schools and 47% from non-public high schools.

Despite the "baby boom" increases in the 1970's, college (national) enrollment is growing annually at 3.5% compared with 8.5% in the 1960's. The "baby boom" should have made the early 1970's better than the 1960's.

What does give some hope, however, is the increase in the part-time enrollment in Connecticut. In 1973, part-time enrollment increased 34.5% and, in 1974, part-time enrollment increased 38.6%. These increases are somewhat better than other states since Connecticut moved very recently into providing facilities and courses for the part-time market. However, these percentage increases are based on themselves, the part-timers, and are not percentages of the total enrollment. Last year, part-time enrollment was about 37% of the full-time enrollment in Connecticut. This is by headcount and so measures a part-time student taking one or two courses against a full-time student taking perhaps 5 or 6 courses per semester. The latter point, delineates the difficulty in trying to match a decrease in full-time enrollment by an increase in part-time enrollment.[1] Our analysis at the state level indicates that the increases in enrollments, in both full and part-time students, are shifting almost from year to year. For instance, our public community colleges are decreasing in full-time enrollment while enormously increasing (33% last year) in their part-time enrollments. The community colleges are now composed of more part-time students than full-time students. The state colleges have shown a leveling of full-time growth and a comparatively small increase (11% last year) in their part-time enrollment. The University of Connecticut and the state technical colleges both appear to be extremely healthy, with about 5% increase in full-time enrollment and 25% and 30% increases in part-time enrollments, respectively.

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[1] Lem Hyde, Executive Director of the Connecticut Conference of Independent Colleges, has calculated that the headcount in Connecticut of 130,000 students in 1973 was the equivalent of about 102,000 full-time students while in 1983, with a projected headcount of 138,000, it will probably be the equivalent of 101,400 full-time students.

The private colleges in Connecticut appear to be leveling their full-time enrollments and only marginally increasing their part-time enrollments. For instance, among the four-year private institutions as a group, they decreased 1% in full-time enrollment and increased 10% in part-time enrollment. What all this means is that there are serious readjustments to be made if some of the market is to be obtained by those that need the clientele the most. Collective bargaining, tenure rights, etc., should not distract a college from its question of survival.

The New England Board of Higher Education has calculated that the gap between private and public tuitions in Connecticut is widening and has increased by about 30% in four years. What this does not tell, however, is that tuition money at private institutions has not been rising as much as "it should" given the increase in inflation and the diminishing increases in revenue from tuition. The private colleges for the past four or five years have been increasing productivity so as to minimize the necessary tuition increases. The final question is how long can this go on given that high school graduates in Connecticut are leveling for the remainder of the decade and will decrease dramatically in the 1980's?

The above facts can be placed on the table as "revenues" and "expenditures" and then analyzed according to the size of their significance. A simple inspection will show that the situation is not good. The message of this paper is to convey the importance of considering relative sizes and rates of change. For instance, part-time students take about one-third as many credits as full timers and so their enrollment must grow three times faster than the "break even" full-time enrollment growth. The next section will indicate some methods or, more correctly, some mechanisms to deal with various factors having different rates of change. The survival of programs and, in some cases, of institutions may depend upon their research personnel's ability to detect significant factors and be able to explain various consequences simply and provocatively to college management.

Handling Rates of Change

Most administrators have heard about at least two types of changes: arithmetic and geometric. Arithmetic is when we add a certain amount at certain intervals, say each year. Geometric is when we multiply by a certain amount every interval. A geometric example is exponential change which depends on the amount present at any interval and the amount grows by the same multiplying factor in each unit of time. The compound interest on our money in a bank is an example of this ever-increasing amount of change. What is important to realize is that few administrators realize how rapidly exponential growth progresses. For instance, at a 10% inflation rate (exponential growth), costs will double in seven years. If enrollment is additive, we will have to add 100% more students at zero cost in seven years to offset this rising cost per student.

The question is how can we keep track of these kinds of changes, their relative size and impacts. Figure 8 shows a typical rate of growth for exponential increases. Clearly, plotting several exponential factors on the same graph would be confusing. One remedy is to use an approximation formula--for exponential rates under 20%, you may divide the rate into 72 and obtain the number of years in which the quantity will double itself. Conversely, if you know the doubling interval, you may divide that time unit into 72 and obtain the percentage change per time unit. Thus, we see that a 10% inflation rate doubles in 72/10 or seven years something that doubles in seven years has 72/7 or 10% exponential rate of change. However, besides being a simple rule of thumb, the doubling formula allows us to "transfer" our graph or analysis from curves to simple straight lines. Figure 9 gives an illustration of how to change the frame of analysis to indicate relative rates of impact.

Still, how can we illustrate both exponential and arithmetic changes simultaneously? Figure 10 attempts to show how a fixed amount (one unit) compares to a percentage increase (exponential change) each year. Since Figure 10 is a logarithmic type scale; only those factors doubling in constant units of time will appear straight. Consequently, a fixed additive increase will appear to diminish its impact with time. This display is useful in determining the long-term effects of various alternatives in collective bargaining, for instance. Namely, a fixed additive increase, year after year, will not "compound" into amounts many times more than the increase originally bargained. Annual percentage increases are man-made inflations. The real difference in costs are not given by the difference between the two curves at a point in time but rather is given by the difference between the two curves during two points in time. Thus, the difference in the area under each "curve" gives the total cost difference between the two alternatives. If each curve is visualized as being the resultant of two bar graphs, the subtraction of areas can be understood. (See Figure 11.) This technique, called integration in calculus, has many applications. For instance, the difference between a plot of jobs and a plot of graduates is more realistically measured by the difference in area between the two plots since former graduates from past years without jobs add to the total amount looking for jobs. Similarly, a possible deficit between the total expenditures and the total revenues in a private college is given by the area between their two plots since unpaid bills accumulate too. (See Figure 11.)

Some Conclusions and Overviews

We can surmise that in trying to save money we should first attack exponential and large, automatic cost increases such as fuel and contracted salaries. It is important not to initiate further compounding expenses. For instance, a rule of thumb is that you buy back a building in maintenance (salaries and overhead: fuel, light, etc.) every ten years. Thus, adding a "new" building adds on operating expense of 1/10 the purchase price each year.

When Robert McNamara went to the Department of Defense, he ordered that the amount of management research be proportional to the amount of expenditure. He found that 76 items contained more than 90% of the total budget. In higher education, this philosophy indicates that we should be spending a lot of time on faculty activity analysis. For instance, if the average faculty member at a particular college teaches four courses, by teaching one more course the school obtains an additional 25% output. If a faculty person is making $10,000 per semester and teaches another course for $1,000, there is only a 10% cost increase. This is an example of comparing various rates of change.

Many believe that "increasing the enrollment" will save colleges. Probably, the reverse is true. There is a decreasing birthrate and college-going rate. If too many colleges grow, they will necessarily cause decreases at some other colleges. Every college cannot have the same strategy, but some development plans seem safer than others.

What is needed is an analysis of how buildings, faculty and overhead expenses can be organized to develop a more attractive college. Attractive internally means growth--not across-the-board increases--for some faculty members and departmental budgets. Attractive externally means market viability--not keeping old, expensive and obsolete programs--but moving faculty into new programs for new times. Tradeoffs must be made. None of the options are good or even "acceptable": increasing class sizes, increasing faculty loads, teaching new subjects, selling buildings, etc. However, a lack of action now can bring down valuable programs later. It may be like an overrun garden which needs pruning. The objective is not cutting but allowing our best possibilities to grow.

The research or Management Information System office can help determine what to keep and what to cut. Such management information, as cost/program and faculty activity, is essential. Cost comparisons will require dialogue between the institution and state coordinating agencies. Without such information, there is a danger of saving or doing the wrong things.

The next step is to plan instead of merely reacting. Regional coordination in initiating new programs can allow each college to plan its development with some assurance. Otherwise, there will be too many possibilities or changes to deal with effectively. We should try to control the situation as much as possible.

To recap, program coordination, management informational analysis, rate-of-change evaluation and exchange of facts seem most important in our ever-changing world of higher education. If your state agency is not providing key facts, having good regional meetings and really listening, you and they are headed for trouble. We are no longer charting a course on the open seas but rather must navigate the rapids. The management of change today does not allow us to take depth soundings as Mark Twain did on the Mississippi. With rapid change, research must be done largely in advance and verified by constant and almost instantaneous feedback.[2] Let us help each other chart our courses and stay in touch.

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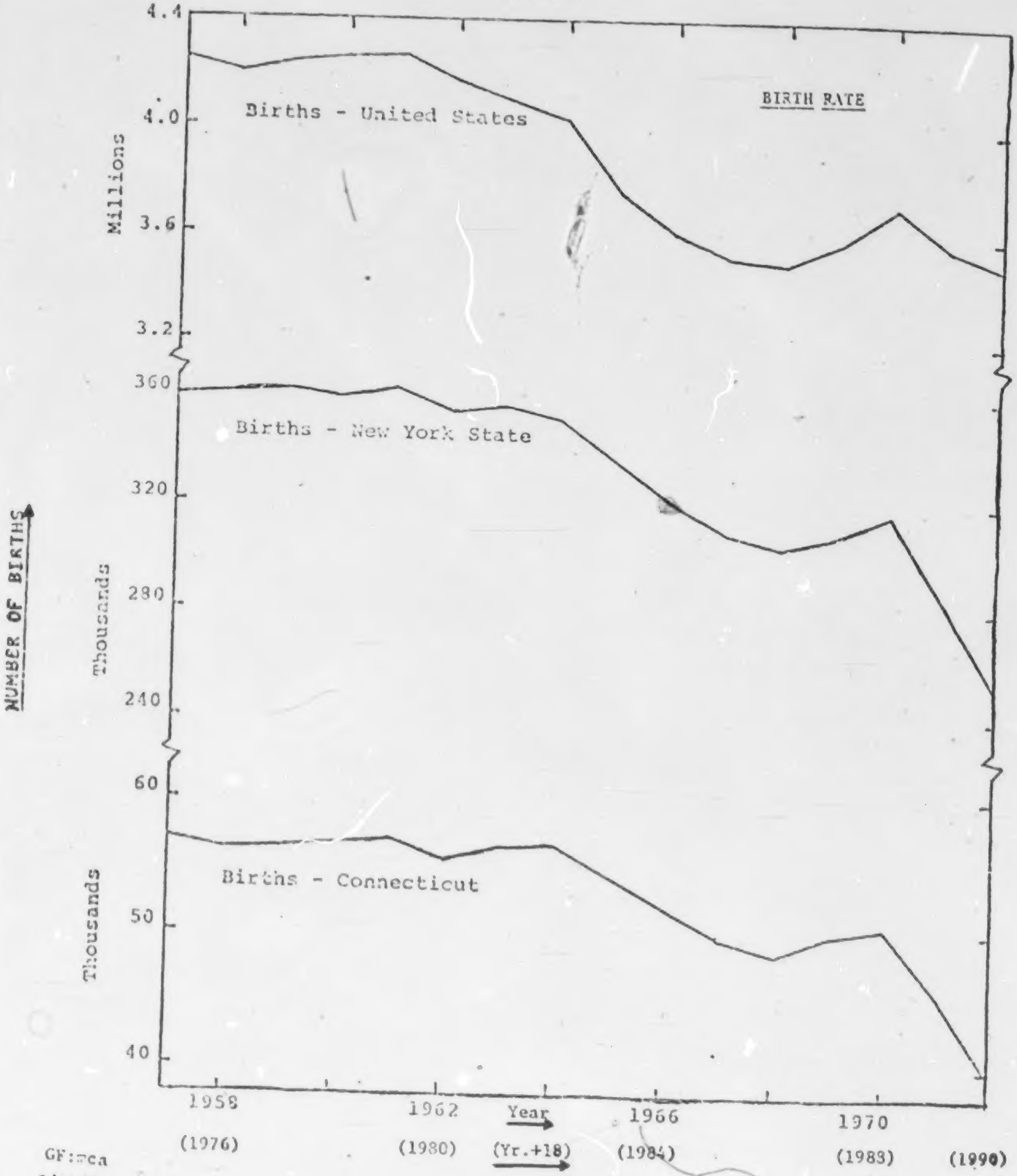
[2] The navigating of a rocketship to the moon is an example where things en route happen so rapidly that it must be charted beforehand.

NUMBER OF BIRTHS BY YEAR AND (Yr. + 18)

FIG. 1.



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HIGH SCHOOL GRADUATES BY YEAR

FIG. 2.

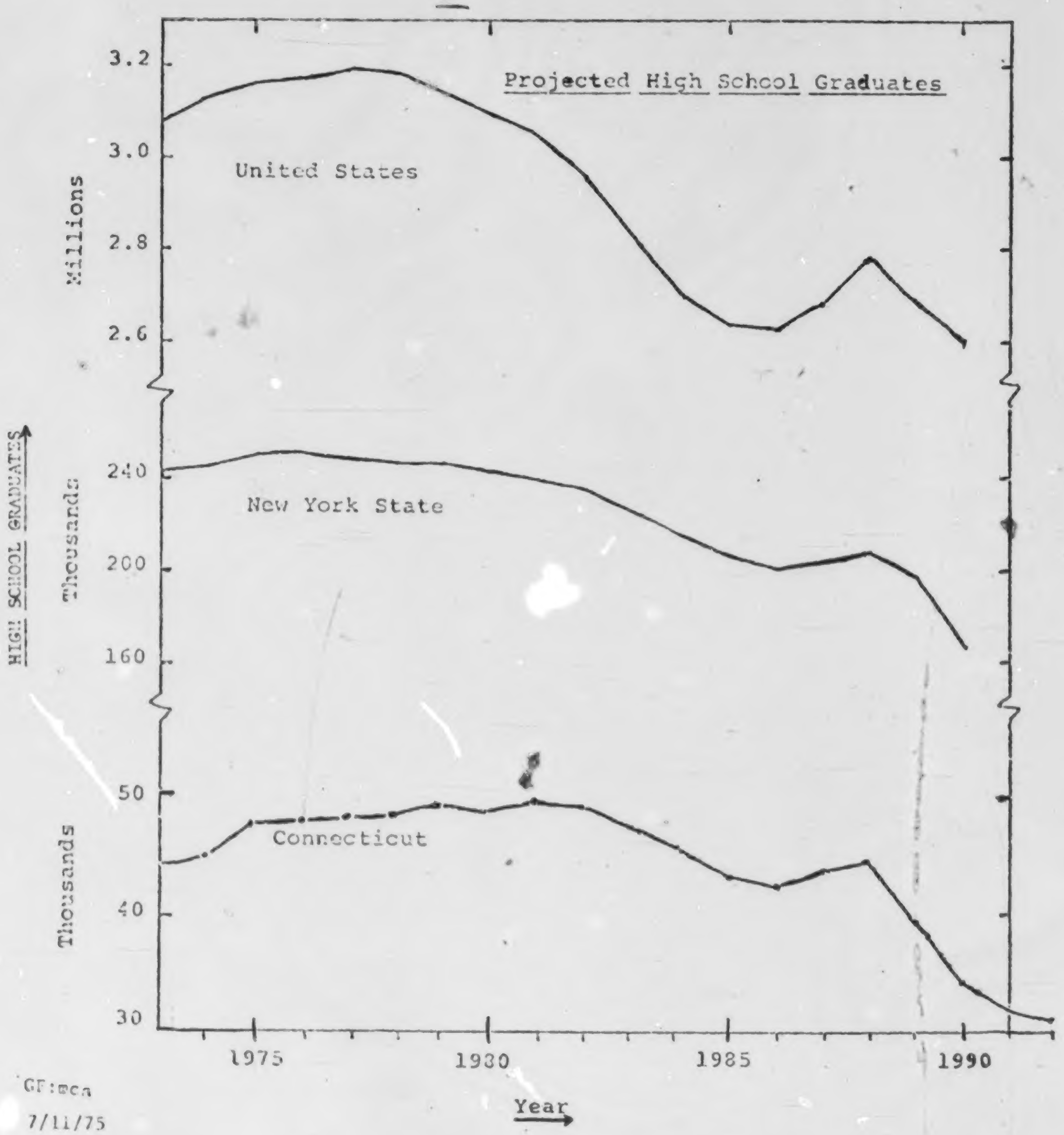

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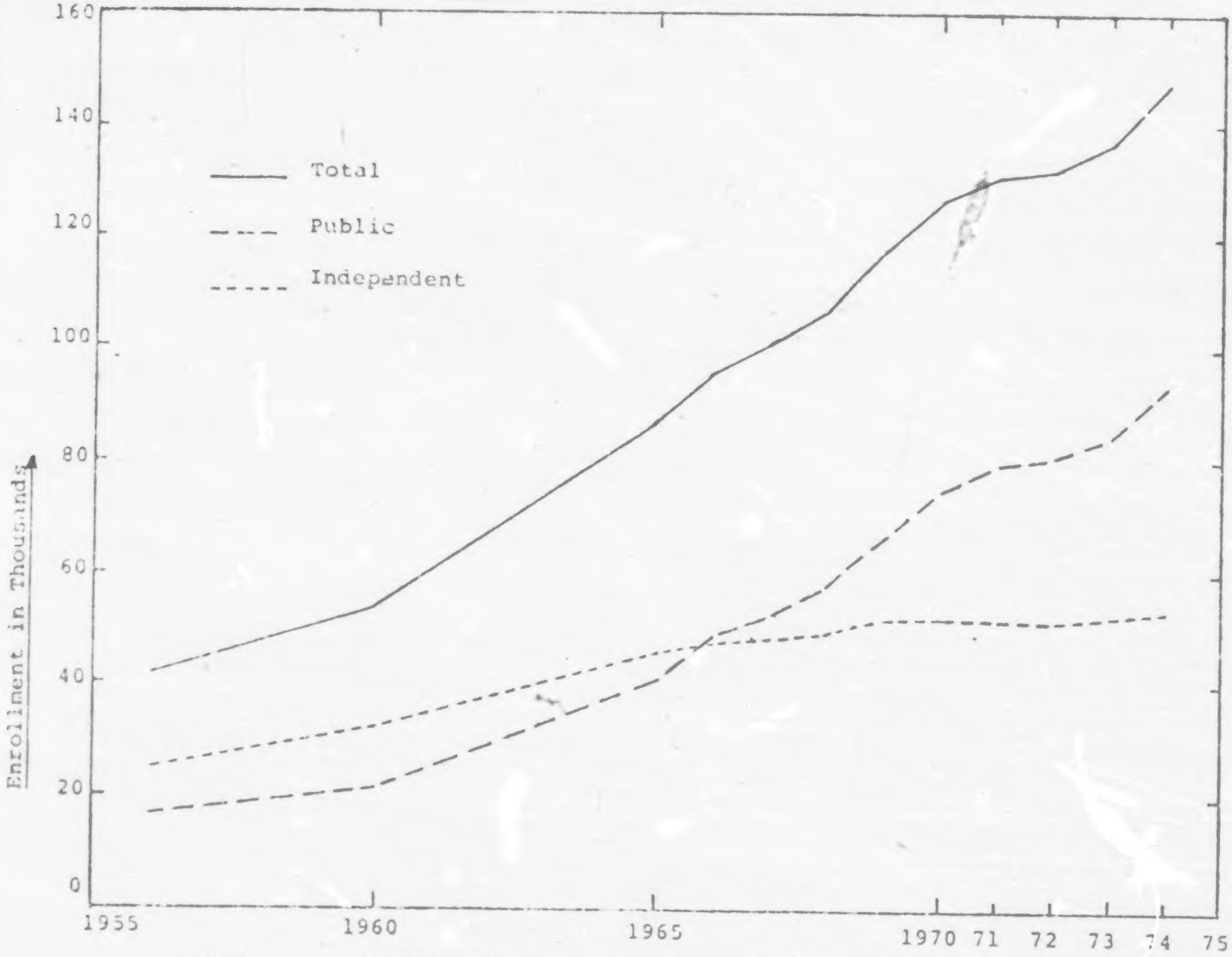
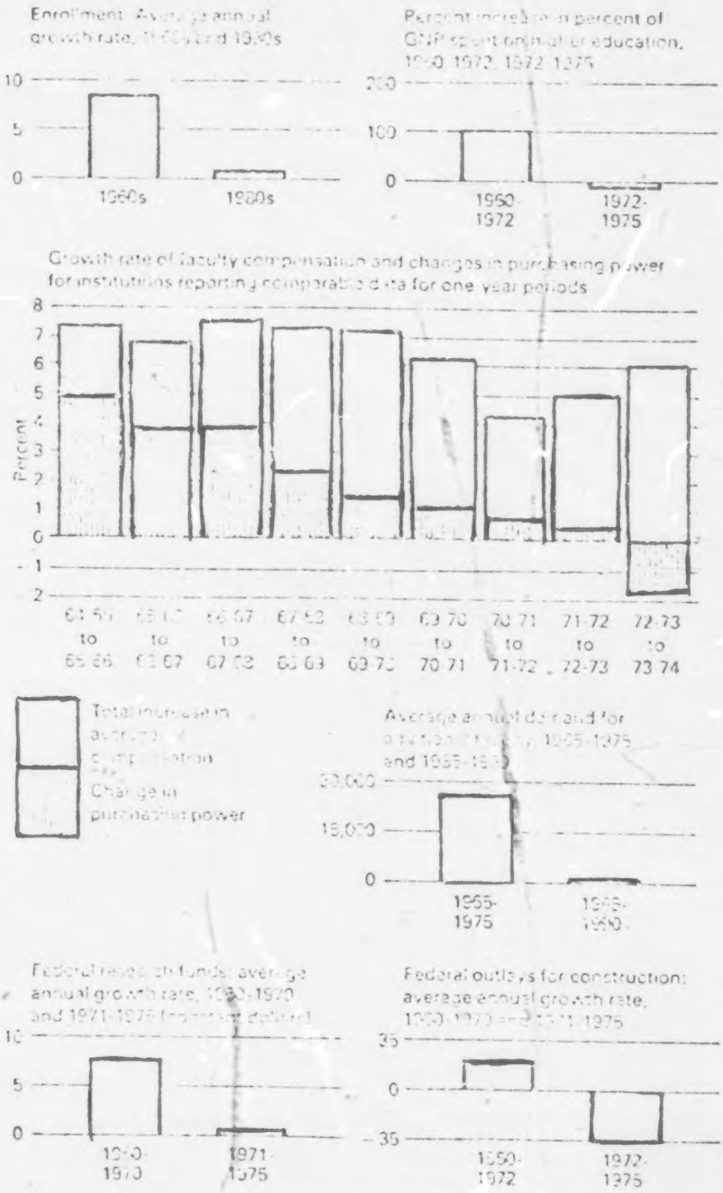
FIGURE 3.

OPENING FALL ENROLLMENT - INDEPENDENT AND PUBLICLY SUPPORTED COLLEGES
Including all Students in Degree and Other Programs



YEAR	INDEPENDENT	PUBLIC	TOTAL
1956	24,783	16,759	41,542
1960	32,215	21,603	53,818
1965	45,773	41,138	86,911
1966	47,180	48,529	95,709
1967	48,262	52,534	100,796
1968	49,109	57,276	106,385
1969	51,349	66,060	117,409
1970	51,861	74,819	126,680
1971	51,251	79,338	130,589
1972	51,191	80,928	132,119
1973	52,375	84,581	136,956
1974	53,793	93,740	147,533

Figure 4 Declining growth rates for higher education


Enrollment: Average annual growth rate, 1960s and 1980s

Percent increase in percent of GNP spent on higher education, 1960-1972, 1972-1975

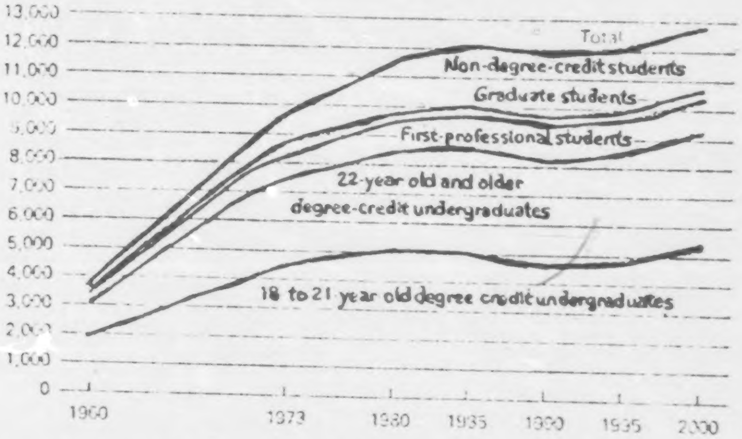
Growth rate of faculty compensation and changes in purchasing power for institutions reporting comparable data for one-year periods

Average annual demand for additional faculty, 1965-1975 and 1985-1990

Federal research funds: average annual growth rate, 1960-1970 and 1971-1975 (in constant dollars)

Federal outlays for construction: average annual growth rate, 1960-1970 and 1971-1975
10
5
0
1960s
1980s
200
100
0
1960-1972
1972-1975
8
7
6
5
4
3
2
1
0
-1
-2
Percent
64-65 to 65-66
65-66 to 66-67
66-67 to 67-68
67-68 to 68-69
68-69 to 69-70
69-70 to 70-71
70-71 to 71-72
71-72 to 72-73
72-73 to 73-74
Total increase in average compensation
Change in purchasing power
30,000
15,000
0
1965-1975
1985-1990
10
5
0
1960-1970
1971-1975
35
0
-35
1960-1972
1972-1975

Figure 5 Headcount enrollments by level and type, 1960-1973, and projected 1973-2000 (in thousands)



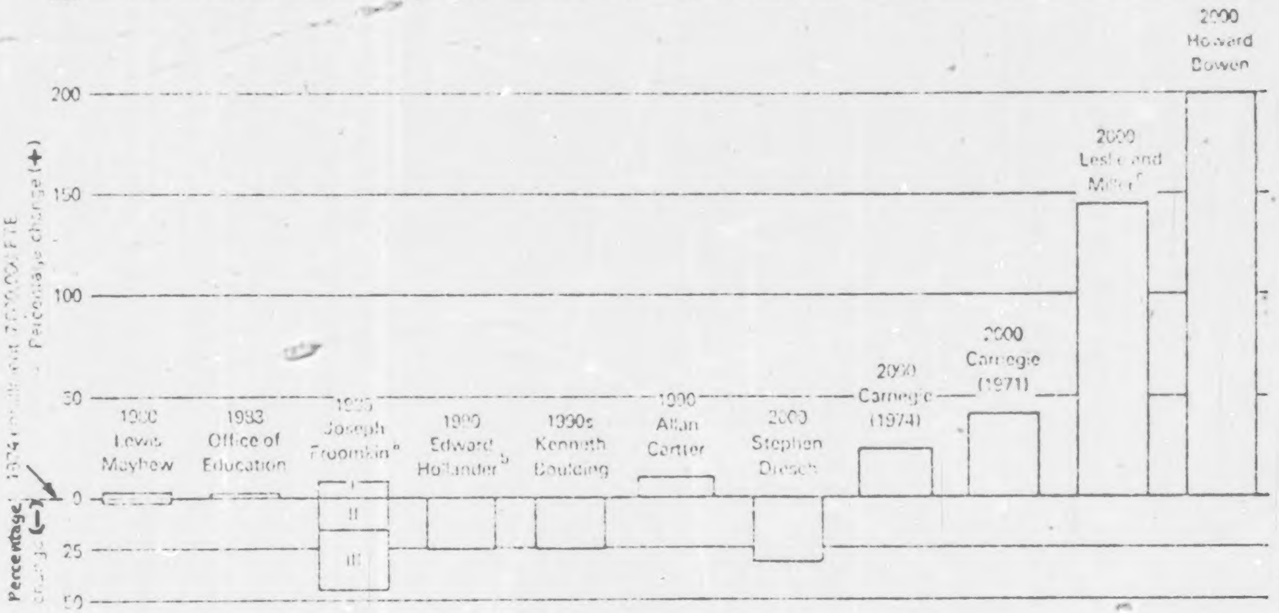
Source: Estimated by Carnegie Council.

Figure 6 Headcount enrollments by level and type, 1960-2000 (numbers in thousands)

Year	*Degree-credit undergraduates*		*Graduates*	*First profes-sionals*	*Non-degree-credit*	*Total*
	18-21	*Other*				
1960	1,911	1,220	356	96	206	3,789
1970	4,071	2,779	900	170	661	8,581
1973	4,159	2,990	989	219	1,007	9,664
1980	5,138	3,293	1,050	258	1,813	11,515
1985	4,952	3,613	1,148	295	2,129	12,137
1990	4,717	3,522	1,072	287	2,220	11,818
1995	4,905	3,701	1,120	299	2,154	12,179
2000	5,355	3,844	1,182	311	2,102	12,794

Source: Carnegie Council

Figure 7. How different projections and possibilities for enrollment in higher education compare with the 1974 level of enrollment (percentage comparisons)



[a] Froomkin sets forth three "scenarios."

[b] Enrollment level for full-time undergraduates in the state of New York.

[c] Leslie and Miller assume that enrollment in higher education is linked directly to the rate of growth of the total gross national product. The Council has estimated the implied growth on the assumption that real GNP rises at an annual average rate of 3.5 percent a year from 1974 to 2000.

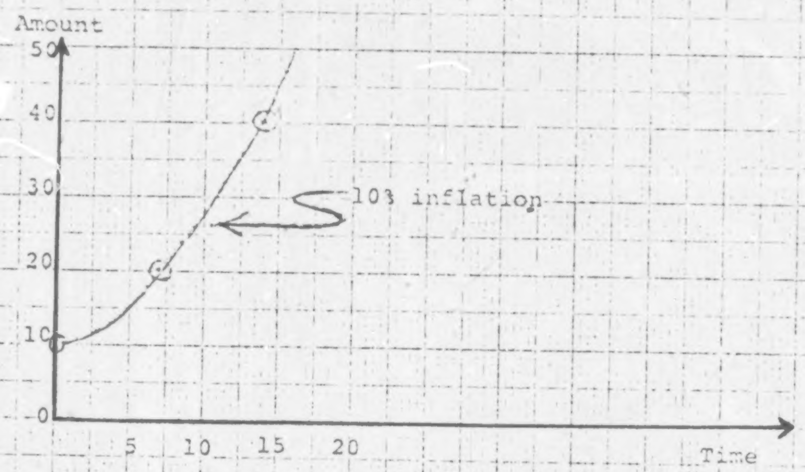
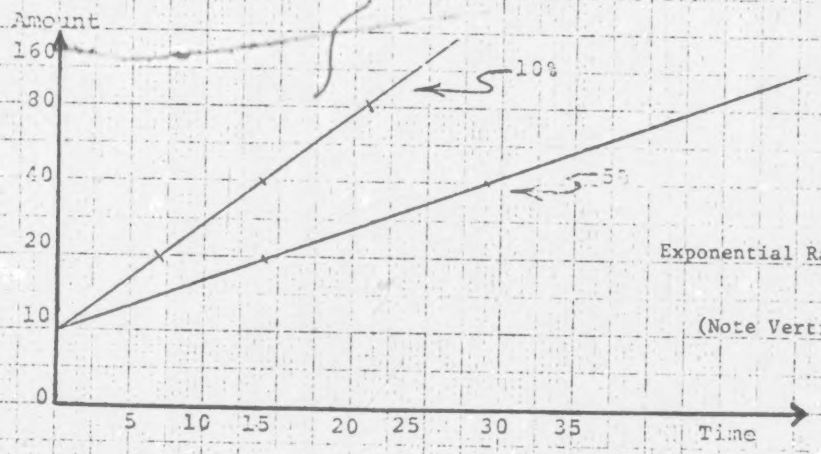


FIGURE 8.



Exponential Rates of Change

(Note Vertical Scale)

FIGURE 9.

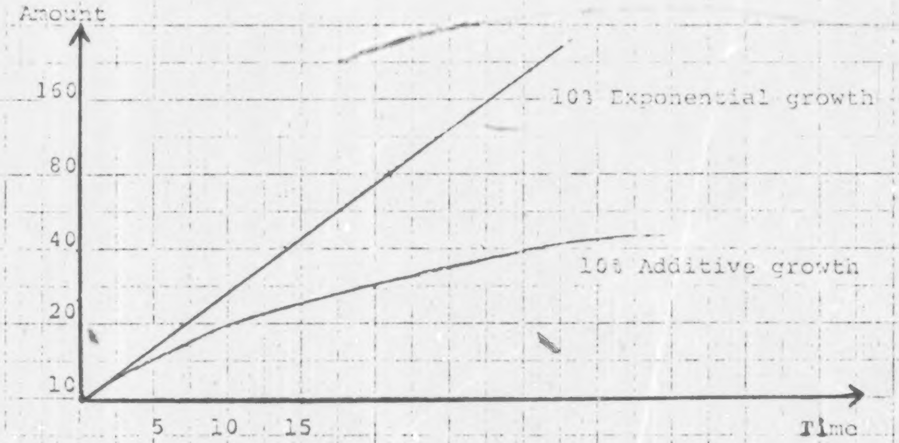


FIGURE 10.

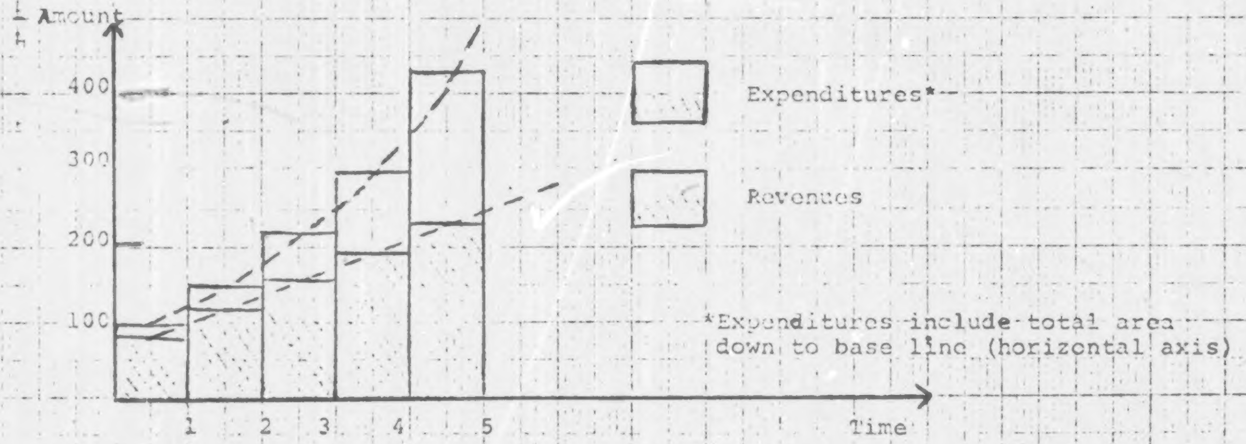


FIGURE 11.

CONCEPTUAL REQUIREMENTS FOR A PLAN OF INSTITUTIONAL DEVELOPMENT: ANSWERING THE UNANSWERABLE

Richard L. Alfred
New York City Community College

Community colleges have multiple roots. Historical developments such as the Morrill Act of 1862 authorizing land grant institutions; the bifurcated university movement at the turn of the century; the California Master Plan for higher education; and the development of the comprehensive high schools, had a profound effect on public two-year institutions. The trend toward equalization of access in American society has been an equally important influence. As massive federal assistance was made available to returning service personnel, to technical institutions, and to economically disadvantaged students, the inevitable result was an increase in demand for education beyond high school. The community colleges of today are largely a product of this demand.

The Legacy of Growth

Initially contrived by local communities as "safe" institutions in which students could economically obtain the advantages of advanced certification without exposure to the ravages or distractions of the youth culture, these colleges have grown repidly in size and stature. At the turn of the century, there were only a few community college students. By 1960 more than 600,000 were enrolled and by 1969 their numbers had grown to almost two million, including full-time and part-time students. Prebaccalaureate students now account for nearly 30 percent of all undergraduates and 25 percent of all college students in the nation.

During the decade of the 60's growth was not limited to enrollment alone. The number of colleges increased by 61 percent and the number of staff by 327 percent. Educational energies were exhausted in attempts to keep up with increasing numbers of students. New programs were launched; new facilities were located and constructed; and new structures were hastily planned to involve the community, the faculty, and the students in decision making. The excitement and the hopefulness that accompanied this decade was reflected in the actions of the community and agencies of state and local government. There was increasing commitment to the concept of a partnership among state, locality, and students in sharing the operational costs of running a college, and the federal government, state and locality in sharing the costs of capital construction. As institutions grew in size and stature, local tax support increased proportionally and state finance formulas were adjusted to meet shifting institutional needs. The result was a sequence of events that met or exceeded the growth needs of two-year colleges and communicated their importance to a nation-wide audience.

Higher Education in Transition

Extensive change and intensive examination have marked the decade of the 70's. The growth trend has begun to level off, or at least, to slow down. Traditional programs, purposes and goals have been challenged, altered, and, in some instances, replaced. There are new constituencies and revitalized older ones.

The communities outside of colleges and the diverse groups within have come to express different means of reaching similar goals. The multiplicity of expectations and the plurality of value systems involved have resulted in a degree of indecisiveness among faculty and administrators about which goals to pursue. Furthermore, there is a widespread belief that increasing enrollments no longer constitute evidence of effectiveness. Quality, from this point of view, does not depend on the number of students, on the diversity of programs, or on the expansiveness of facilities, but on the ability of the staff and on the outputs of education.

Complicating the task of the 70's has been the financial crisis that has befallen many of our institutions. Faced with reductions in federal appropriations, financial stringency in many of the states, and increasing reluctance of voters to approve additional taxes, broader financial support will be necessary to maintain or increase the level of existing programs. This has led to an appeal for state agencies to assume a larger share of the responsibility for financial two-year colleges. As state support has increased, so too has the pressure for accountability. A constructive process for institutions accustomed to a meritocratic style of operation, accountability has deleterious effects for two-year colleges. They are non-traditional in both the program and operational sectors and require non-traditional measures to profit from state systems of control. The insensitivity of many state agencies to this need casts into doubt the effect of increased support without corresponding adjustments in the formulas for resource allocation.

Conceptual Base for Planning

Both periods of development--the 1960's and the 1970's--involve conditions that are extreme; each decade is a limited and transient reflection of immediate short-run concerns that have challenged the existing balance within institutions. The rate of growth of programs and facilities in the early 1960's clearly could not be maintained for long, even in a prosperous economy, and it was clear from the mid-1950's on that the rapid growth in enrollments due to high post-war birth rates was bound to be followed by at least a relative trough. Similarly today, the financial exigencies of economic recession are not necessarily harbingers of a new permanent condition, nor is public disaffection with higher education likely to increase significantly.

The concept of "steady state" is often used to refer to the current condition. Called upon to respond to conditions of acceleration and growth in the previous decade, community colleges will have to respond to deceleration and possible contraction in the decade ahead. Their resilience will be tested in terms of their ability to respond to a series of catalytic shocks such as those apparent in the trend toward decreased financial support; the onslaught of new learners into the educational system; increasing competition for tax-base revenues; the loss of public confidence in higher education; increasing demands for accountability; concentration of power for operating decisions in state agencies; and increasing competition for career educational programs. These trends are not symmetrical for fixed plant and tenured faculty make change a variable process for different institutions. But the steady state does reward organized planning--it provides community college administrators with an opportunity to systematically organize their institutions. In a time of contraction the creative management of change is a different and more exacting task than creative leadership in a period of expansion.

To cope with the uncertainties of the steady state, planning reforms will be required that introduce some basic form of control over the many extraneous factors that can influence institutional goals and purposes.

In an era of change, administrators are willing to examine programs and policies with a rigor that has heretofore not existed. They also are willing to make educational purposes more explicit and to think consciously and systematically about alternative futures. Planning has the potential to revolutionize the current structure of institutional management, but for this to occur, elements of institutional functioning and system-wide goals must be better understood.

Planning is a process of designing structures, mapping channels for the flow of resources, and encouraging changes in behavior to coincide with ideas about what the institution should be doing and how it can best do what it says it wants to do. It can be organized in a variety of ways, a plan for institutional development being one of them, and it is translated from an abstract pattern for the future into actuality through a continous process of institutionalization.

The institutionalization of planning presents the college with an opportunity to examine and, as necessary, to change the decisions which affect central purposes and goals as well as to change the methods by which these decisions are made--that is to alter the structure of the decision making process. To be effective, a community college must have a discernible pattern of behavior since it is first an organizational gestalt composed of many distinct stimuli requiring timely responses the agregate of which moves the institution in pursuit of its goals. Planning supports this concept by providing two essential conditions for institutional development: First, it involves the establishment of system-wide goals (i.e., goal-setting) and second, the examination of these goals in the context of system-wide activities (i.e., evaluation).

The educational enterprise is a dynamic process intended to produce certain desired outcomes in students. It is guided by objectives which are a source of direction for programs and staff as well as the basis for determining the effectiveness with which resources are used. The application of system-wide goals to known activities within the institution--a schematic of institutional functioning it is called--is the conceptual foundation for the institutional development plan. Measures of institutional functioning (i.e., student outcomes, unit cost, curriculum effectiveness, facilities utilization patterns, staffing ratios, etc.) can be used to assess the educational process at various points in time and at different levels of analysis. The application of these measures to institutional goals in a comprehensive evaluation model is the starting point for planning.

Figure I represents a diagram of the relationship between institutional goals and function measures in the planning process. This diagram emphasizes the importance of evaluation data as a necessary prerequisite for effective planning. The linkage between goal setting, planning and evaluation in higher education institutions has never been more critical. Any plan for institutional development must have as its central purpose the integration of these concepts into a viable arrangement for long-range planning. The institutional development plan is formulated directly in accord with the application of available evaluation data to system-wide objectives and is generalizable to all units of management within the institution. Designed to present alternate paths to a determinable future, it is based on several key assumptions:

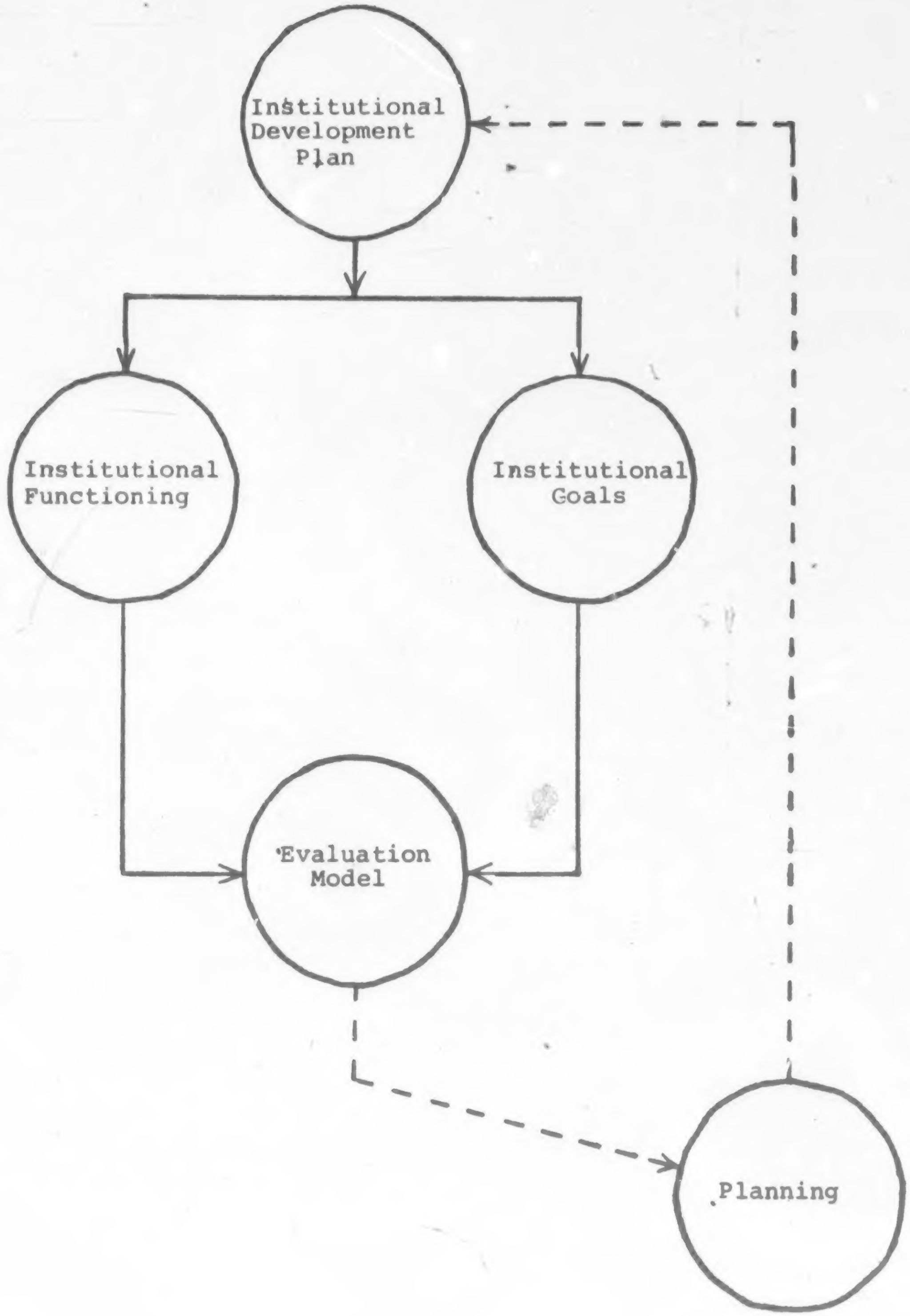

Institutional Development Plan
Institutional Functioning
Institutional Goals
Evaluation Model
Planning

Figure I. Stages in the Planning Process

*In the face of an uncertain future, administrators are sensitive to the need for planning and to identify alternative paths for institutional development.

*A basic measure of control can be exercised over the many factors that influence the educational process at any one point in the life of an institution.

*The educational process can be conceptualized in a cross-sectional and longitudinal research design and translated as a planning model into achievable language.

*A recognized decision making apparatus exists in every institution to convert evaluation findings into useful planning concepts.

*A plan for institutional development, once delimited, will be used by faculty and administrators to guide the further development of the institution through variable internal and external conditions.

Awareness of these assumptions is a prerequisite for the development of a conceptual foundation for the planning process. Regardless of how effective or ineffective the planning effort can be, failure to properly assess the political setting in which the process occurs will result in early termination of administrative efforts to develop an institutional development plan.

Goal Setting

The first concept in the planning process is goal-setting. Organizing for effective planning requires a total conceptual framework beginning with a stated mission and ending with a systematic approach to operations. Most two-year colleges develop a general set of goals at an early stage in their development. Ideally these goals should be based on a defined awareness of community needs and should relate to specific time frames for their accomplishment. This by necessity involves a market analysis of community educational needs and their translation as an operational plan into the functions that staff must perform

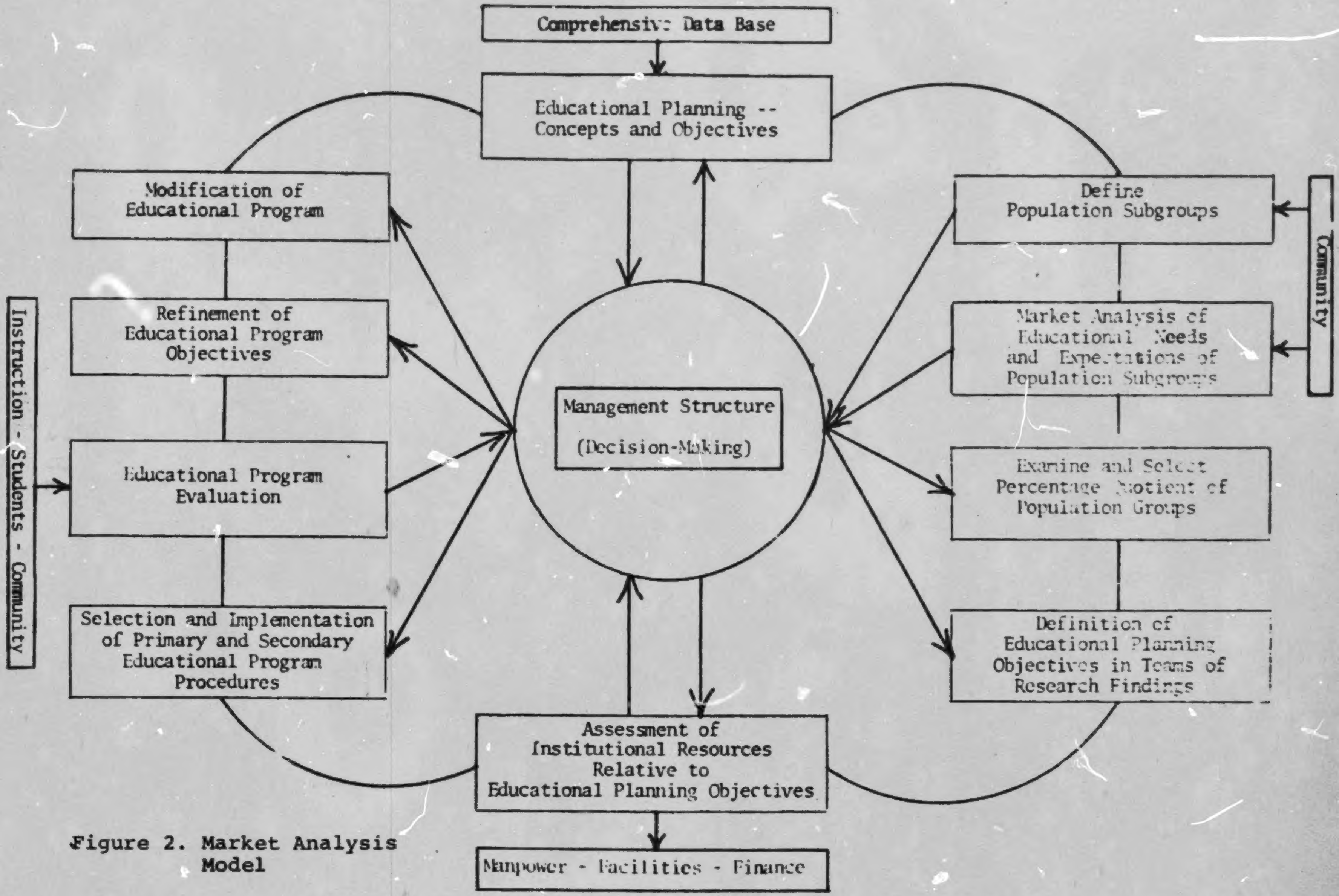

Comprehensive Data Base
Educational Planning -- Concepts and Objectives
Modification of Educational Program
Refinement of Educational Program Objectives
Educational Program Evaluation
Selection and Implementation of Primary and Secondary Educational Program Procedures
Instruction - Students - Community
Management Structure
(Decision-Making)
Define Population Subgroups
Community
Market Analysis of Educational Needs and Expectations of Population Subgroups
Examine and Select Percentage Motient of Population Groups
Definition of Educational Planning Objectives in Teams of Research Findings
Assessment of Institutional Resources Relative to Educational Planning Objectives
Manpower - Facilities - Finance

Figure 2. Market Analysis Model

in support of stated goals.

Numerous market analysis models are available but they all are based on the general assumption that institutional goals should both follow and support the educational needs of the community. Figure 2 depicts the various steps in a market analysis. In every metropolitan region in the United States census data are available that describe the population in terms of characteristics such as age, sex, race, ethnicity, veterans status, occupational status, family income, education level and unemployment. These data provide comprehensive information that can be used to formulate institutional goals. Institutional objectives should follow directly from the statement of goals and should be stated in concrete performance terms. They typically define the types of population sub-groups to be served and the types of programs to be offered. Some examples of objectives are the following:

*To develop and implement a program in Climate Control Technology that will enroll 125 students for the 1975-1976 academic year.

*To increase enrollment in Liberal Arts by approximately 250 students for the 1975-1976 academic year.

*To open a reading tutorial program which will enroll approximately 300 or more students at the 10th grade reading level (or below) during the 1975-1976 academic year; terminal reading levels should enable students to perform in sequential communications curricula at an average of "C" or better.

The development of institutional objectives in concrete form carries forward the process through which planning is institutionalized. Administrators are able to appraise the educational program in the context of current resources and to measure institutional development against a series of short-range and long-range planning yardsticks.

Evaluation

The second concept in the planning process is the research design provided by a conceptual model of institutional functioning. Institutional objectives function in a constantly changing environment. The use of a conceptual model to organize and report complete parameters of institutional functioning is the only reliable means for measuring staff performance and program outputs in support of stated objectives. As information concerning the consequences of employing resources in certain areas becomes available, new objectives are formulated that serve to confirm or revise institutional direction. Planning is only as effective as the quality and comprehensiveness of the data upon which it is based. The development of a quality evaluation system is absolutely essential for successful implementation of a long-range development plan of any type and is perhaps the single most important component in the institutional development plan.

In theory, institutional functioning consists of a series of activities designed to move students from one status to another. Astin and his associates have developed a model for research on college functioning that offers considerable promise for higher education institutions. In this model--what may be called an "input/output" model of college functioning--the background characteristics of entering students and environmental characteristics of the college and community are considered as "input" (see Figure 3). Included in this input, of course, are the entering or initial scores of students on the particular variable or variables under consideration, the objectives of the college, and descriptive measures of the college environment. An "expected" output

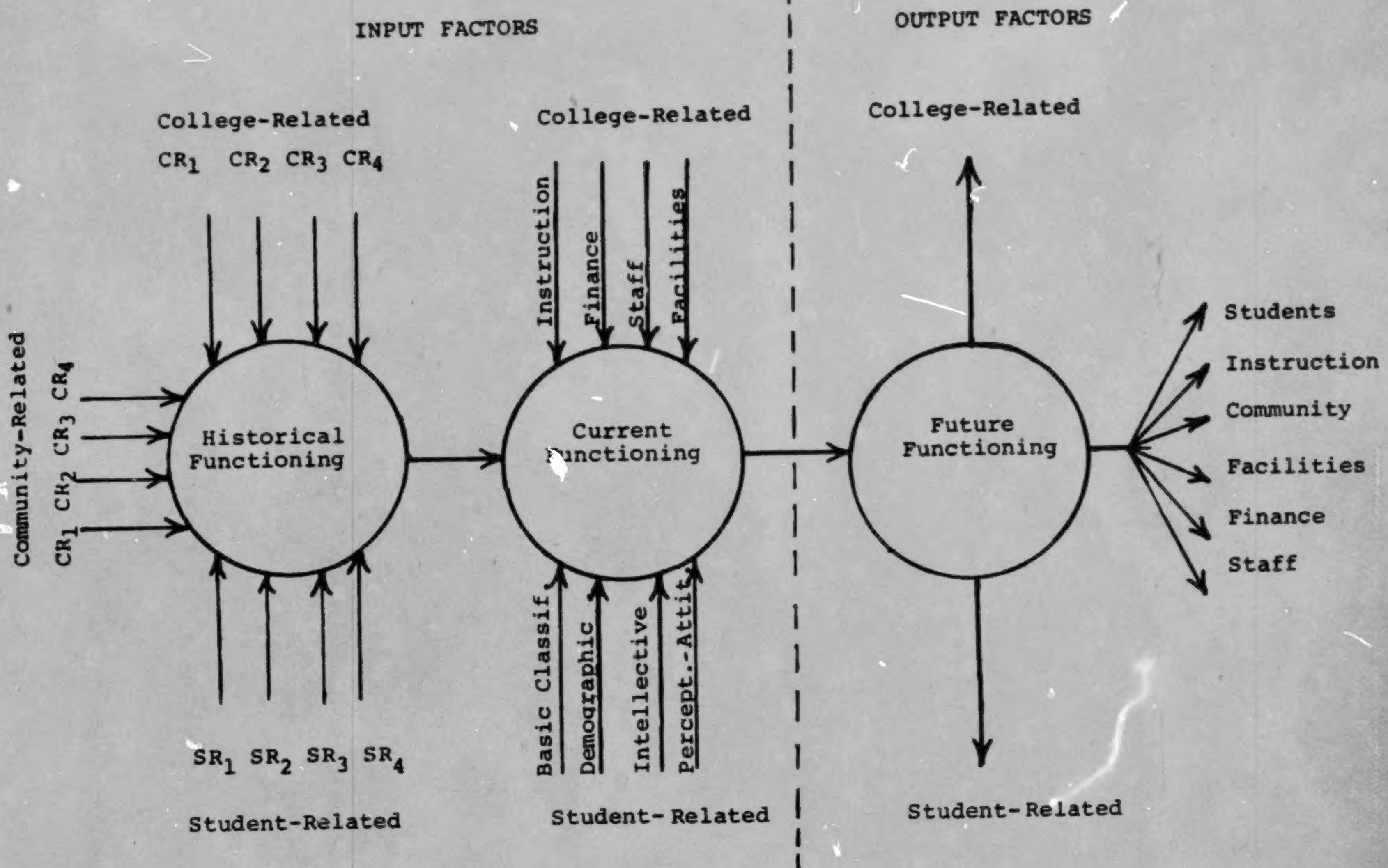

INPUT FACTORS
OUTPUT FACTORS
College-Related
CR$_1$ CR$_2$ CR$_3$ CR$_4$
Community-Related
CR$_1$ CR$_2$ CR$_3$ CR$_4$
Historical Functioning
SR$_1$ SR$_2$ SR$_3$ SR$_4$
Student-Related
College-Related
Instruction
Finance
Staff
Facilities
Current Functioning
Basic Classif
Demographic
Intellective
Percept.-Attit.
Student-Related
College-Related
Future Functioning
Students
Instruction
Community
Facilities
Finance
Staff
Student-Related

Figure 3. Input-Output Model of Institutional Functioning.

theoretically at any time in the life of an institution based on these input characteristics can be computed and the effect statistically removed from "observed" outputs of the educational process (actual scores on the variable or variables under investigation) producing a "residual" output which is independent of input characteristics. Measures of the characteristics of the college and the community can then be related to this residual output to appraise the functioning of the college. This process culminates in the formulation of evaluation measures which describe college functioning in terms of demonstrable change in educational outputs as well as the effectiveness of the institution in producing conditions which lead to change.

Output measures are computed for three different intervals in the life of an institution: the current academic year period, the preceding five-year period, and five years into the future. Statistical measures used to assess outputs are presented in Appendix I. These measures are designed to describe central elements of institutional functioning in terms of goal setting, program review, and cost analysis subsystems--each capable of being broken down into various data bases (i.e., students, instruction, facilities, community, finance and manpower) and different levels of analysis (i.e., institutional, program, department and individual). The first subsystem, goal setting, involves the classification of institutional objectives and the establishment of an integrated set of goals as a prerequisite to any form of comprehensive evaluation. The second subsystem, program review, is used to appraise the quality of programs and the performance of staff and to validate the level of effectiveness currently assumed in fixed-effectiveness analyses.

Program reviews are not new but they generally are used only in conjunction with accreditation where the objective is to protect the institution and to certify its quality. Finally the cost analysis subsystem responds to management needs for gross quantitative measures of the cost effectiveness of present operations and estimates of the consequences of various decision alternatives. Analyses of this type examine the quantity of output and produce a unit cost for each operation.

Each subsystem, depending upon its utility and purpose, involves certain types of data. The planning process requires numerous definitions establishing relationships between multiple evaluation measures for any one subject. If projections related to curriculum program growth are required, the problem can be approached through systematic analysis of twenty data elements descriptive of curriculum outputs at four levels of analysis in the instruction component of the program review subsystem. Multiple year trendlines are constructed that define historical changes in the output of educational programs. If the current structure of institutional goals and objectives is reflective of changes in program output, the linkage between goal setting and evaluation systems is sound and trendline data can be used to produce alternate projections for institutional development. If evidence of congruency is not present, efforts will need to be made to renorm the educational process and to equilibrate current institutional goals with stated evaluation findings. The absence of a basic measure of congruency essentially serves to forestall the utility of the planning process.

Multiple data elements combined with an attempt to redefine and modify institutional goals at various levels of analysis encourages the conversion of evaluation information into useful planning concepts. The problem is to determine just how this conversion will occur.

Unanswered Questions

The conversion of evaluation data into planning concepts is the crux of the institutional development plan. A formal plan does not simply follow from the existence of institutional goals and evaluation data. Whether at the two-year or four-year college, there are persistent problems in planning just as there are persistent results. First and foremost, and for many reasons, there is a lack of management sensitivity to the need for converting institutional data--past, present, and future--into planning concepts. Once data are in hand regarding program outcomes, management guidelines are necessary for their translation into planning alternatives. This involves system-wide priorities and requires that administrators maintain some form of decision making apparatus for the conversion of data into action.

Many administrators have failed to attend to this need and lapse into lethargy when the realization sinks in that they must assume an active leadership role if planning is to be successful. The absence of a decision making apparatus culminates in a hard core of unanswered questions which plague the educational planner: What are the uses of evaluation data in higher education institutions? What procedures should be used in the conversion of data into action programs? Who should be responsible for assessing the implications of various data trends and advising management of decision alternatives? What is an appropriate balance between politics and planning in the planning process? How can evaluation data be used to "improve" the educational program?

What is the value of planning in an institutional setting in which political concerns constantly override planning alternatives? Satisfactory answers to these and other questions will be required if two-year colleges are to successfully engage in planning.

Figure 4 represents a graduated decision making model that can be used in the conversion of evaluation findings into planning concepts. The reader will immediately recognize in this schematic the characteristic of competing staff interest which has proven so dysfunctional for higher education institutions. Ideally, planning is a graduated process that involves the making of decisions that strike an even balance between political "considerations" on the one hand and evaluation data on the other. Too often, however, political expediency has been the dominant force in decision making with research recommendations simply a superficial adjunct to the process. The influence of research is either limited to window dressing for terminal decisions or to indirect influence on administrators through the naive political machinations of research specialists. This is most evident in the uncanny ability of administrators to manipulate evaluation findings into a framework congruent with their value expectations. The result is the isolation of research from decision making and the loss of credibility for planning as a useful tool in the management enterprise.

In the absence of a decision making apparatus to convert evaluation data into planning concepts, the planning process is fragmented with no central integrating mechanism. This results in a pattern of vested interests that more often than not lacks credibility as an objective base for planning. The graduated decision making model by design is sensitive

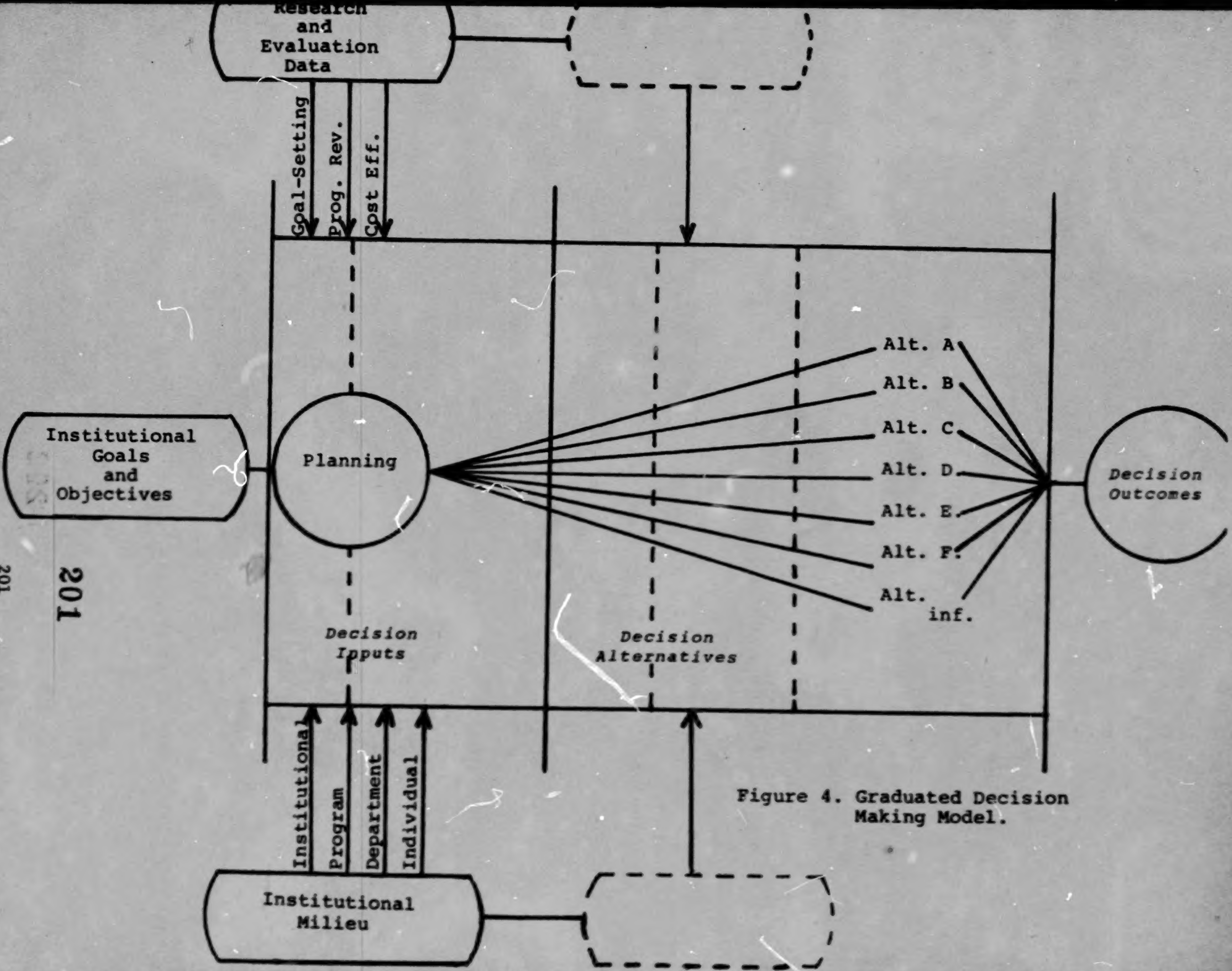

Research
and
Evaluation
Data
Goal-Setting
Prog. Rev.
Cost Eff.
Institutional
Goals
and
Objectives
Planning
Alt. A
Alt. B
Alt. C
Alt. D
Alt. E
Alt. F
Alt. inf.
Decision
Outcomes
Decision
Inputs
Decision
Alternatives
Institutional
Program
Department
Individual
Institutional
Milieu

Figure 4. Graduated Decision Making Model.

to the political climate within which the institution functions as well as to the need for time in which to develop decision alternatives. It is designed to elicit alternative paths for institutional development as the product of available evaluation data. It does not assume that the values and interests of college constituencies will be congruent with available data but it does assume that administrators will be able to achieve concensus with regard to inputs into the planning process.

Institutional constituencies, depending upon their numerical size and internal cohesiveness, bring different value perspectives to the planning process. To the extent that these different value perspectives are identified and understood, long-range planning can be effective as a guide to institutional development. The decision making model, by posing different potential outcomes of evaluation findings to faculty and administrators, can be used to force concensus regarding long-range development. Using available evaluation data in combination with stated institutional goals and staff input, multiple alternatives for institutional development are constructed. These alternatives range from that which represents a pure political solution to the task ahead to that which represents a data-based approach to long-range planning. The probable solution likely rests somewhere in the middle but simply the task itself of identifying potential alternatives is sufficient to point faculty and administrators in the direction of planning.

Outcome alternatives that are defined in such a way as to make development priorities clearly evident will, in the context of limited resources, become the focus of institutional change. The institutional development plan is the formal representation of these alternatives. It contains a summary description of decision alternatives, the resources necessary to implement to these alternatives, and institutional preferences with regard to the desirability of particular alternatives.

Framework of the Plan

The framework for the institutional development plan has as its main focus the formulation of new junctures between institutional objectives and evaluation findings. Given alternative outcomes of evaluation data, new objectives are required that bind faculty and administrators in the pursuit of relevant system-wide goals. Figure 5 represents a model for this task. Beginning with system-wide goals, new objectives are formulated that become a source of direction for staff as well as for determining the effectiveness with which resources are used. Institutional objectives are defined within the context of the graduated decision making model and are comprised of inputs from both external and internal constituencies. Using these objectives as a reference point, each functional level within the administrative structure must define alternative methods for achieving special objectives to guide the employment of resources and to provide a means for evaluation. Failure to develop clear and orderly methods for achieving objectives permits staff to pursue different and in some instances conflicting priorities and contributes to an emphasis upon the personality of role incumbents. It makes evaluation difficult or impossible, and it creates the environment for innumerable intrainstitutional conflicts.

The most critical phase in the institutional development plan is the identification of evaluation criteria that can be used to determine the extent to which alternative methods are successful in achieving

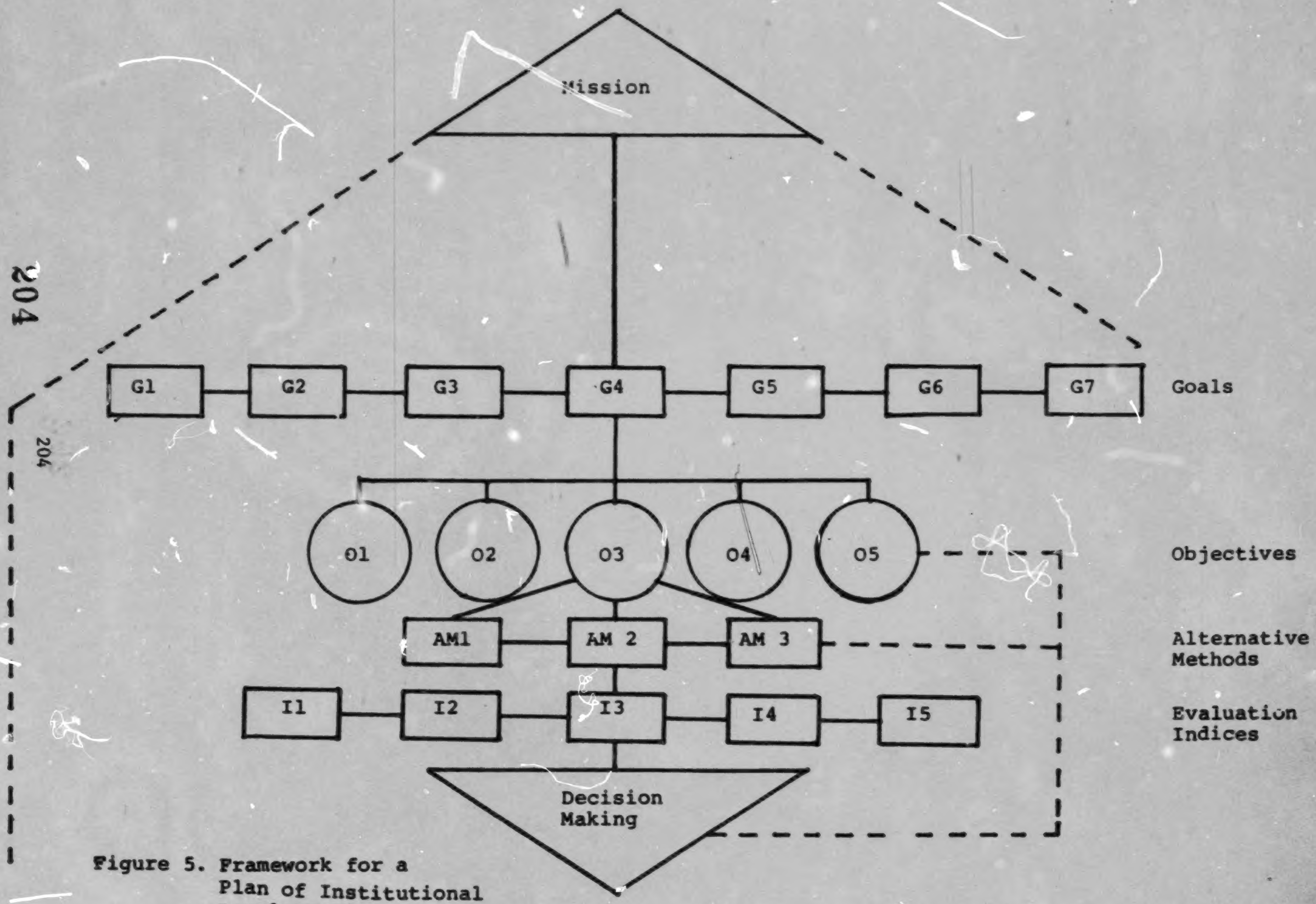

Mission
G1
G2
G3
G4
G5
G6
G7
Goals
O1
O2
O3
O4
O5
Objectives
AM1
AM 2
AM 3
Alternative Methods
I1
I2
I3
I4
I5
Evaluation Indices
Decision Making

Figure 5. Framework for a Plan of Institutional Development.

planning objectives. Attention must be paid to the nature of data that will be collected to support criteria, as well as to the means for collecting, reporting, and interpreting such data. As information concerning the consequences of employing certain alternative methods is tabulated, a renorming process is initiated; new objectives and methods are formulated; and adjustments are made in the decision making process to confirm or revise institutional direction.

The phases defined above, with the insertion of appropriate procedures, make up the substance of the institutional development plan. They are valid whether or not the data they report are congruent with administrative and faculty expectations. The focus of the plan must by necessity be to provide the college with alternatives for development that will help it to adjust to emerging social conditions. Anything else--overemphasis upon the political values of faculty and administrators or emphasis on esoteric research directed to peripheral phenomena will result in negligence of higher order institutional needs and will doom the planning effort to failure.

The concepts underlying a plan for institutional development require thought, commitment, and evaluation. Such a plan is not intended for use only as a readily available means for pacification of external agencies nor is it intended for use as a release mechanism for faculty and administrators who prefer to deal with difficult issues by relegating them to abstract-thinking planners. The institutional development plan is a necessary response to conditions which challenge the future of American colleges and universities. It should not be treated lightly. Indeed, it may offer more than its early promise if faculty and administrators are willing to come to grips with the many issues that plague higher education institutions in the steady state.

Appendix I

Subsystem and Data Components	Dimension		Level of Analysis			
	Fixed-Effectiveness	Value-Added	Institutional	Program	Dept./Div.	Individual
Goal Setting						
Students						
career preparation		X	X			
general education		X	X			
university parallel preparation		X	X			
personal development		X	X			
basic skills education		X	X			
Instruction						
multi-modal instruction		X	X			
learning objectives and support services		X	X			
monitoring systems		X	X			
Community						
service to educational, vocational, social and cultural needs		X	X			

Subsystem and Data Components	Dimension		Level of Analysis			
	Fixed-Effectiveness	Value-Added	Institutional	Program	Dept./Div.	Individual
expanded access		X	X			
Facilities						
space requirements conducive to learning		X	X			
facilities extended to community: "community is campus"		X	X			
Finance						
financial support is adequate to meet institutional objectives		X	X			
Manpower						
staffing adequate to meet student and community needs		X	X			
Program Review						
Students						
rate of participation in student development programs	X			X	X	X
use of campus facilities	X		X	X	X	X

Subsystem and Data Components	Dimension		Level of Analysis			
	Fixed-Effectiveness	Value-Added	Institution	Program	Dept./Div.	Individual
average section size	X		X	X	X	X
credit hours successfully completed	X		X	X	X	X
distribution of grades	X		X	X	X	X
performance in sequential courses	X	X	X	X	X	X
academic honors	X	X	X	X	X	X
academic probation or dismissal	X	X	X	X	X	X
transfer of credits to other institutions	X	X	X	X	X	X
academic performance in other institutions	X	X	X	X	X	X
occupational placement of graduates	X	X	X	X	X	X
job performance of graduates	X	X	X	X	X	X
certification and/or licensure scores of graduates	X	X	X	X	X	X

Subsystem and Data Components	Dimension		Level of Analysis			
	Fixed-Effectiveness	Value-Added	Institution	Program	Dept./Div.	Individual
use of college instructional support facilities	X			X	X	X
academic achievement	X		X	X	X	X
change of major field	X		X	X	X	X
withdrawal from college	X	X	X	X	X	X
"stop-out"	X	X	X	X	X	X
incidence of transfer to other institutions	X	X	X	X	X	X
graduation	X	X	X	X	X	X
employment patterns	X	X	X	X	X	X
perception of college characteristics		X	X	X	X	X
Instruction						
enrollment in programs	X		X	X	X	X
student credit hours generated	X		X	X	X	X
student contact hours	X		X	X	X	X
faculty-student ratio	X		X	X	X	X

Subsystem and Data Components	Dimension		Level of Analysis			
	Fixed-Effectiveness	Value-Added	Institution	Program	Dept./ Div.	Individual
student perceptions of curriculum effectiveness		X	X	X	X	X
student perceptions of instructor effectiveness		X	X	X	X	X
faculty perception of student performance		X	X	X	X	X
employer evaluation of graduating student performance and preparation		X	X	X	X	X
lay advisory committee perceptions of program effectiveness		X	X	X	X	X
Community						
relationship of institutional programs to community needs	X		X	X	X	X
enrollment of different community subgroups in programs	X	X	X	X	X	X
community perceptions of college programs		X	X	X	X	X

Subsystem and Data Components	Dimension		Level of Analysis			
	Fixed-Effectiveness	Value-Added	Institution	Program	Dept./ Div.	Individual
sequential enrollment in programs	X	X	X	X	X	X
Facilities						
space utilization	X		X	X	X	X
classroom						
labs						
students						
auxiliary						
percentage utilization of available instructional space	X		X	X	X	X
square footage of useable instructional space per FTE student	X		X	X	X	X
community use of college facilities	X	X	X	X	X	X
college use of community facilities	X	X	X	X	X	X
Finance						
projected versus actual cost per FTE student	X		X	X	X	X
projected versus actual cost per administrative department	X		X	X	X	X

Subsystem and Data Components	Dimension		Level of Analysis			
	Fixed-Effectiveness	Value-Added	Institutional	Program	Dept./ Div.	Individua
analysis of line item expenditures	X		X	X	X	X
analysis of trends in resource allocation within departments	X		X	X	X	X
Manpower						
administrator performance in compliance with management objectives	X	X	X	X	X	X
faculty performance						
number of visits, lectures, etc. in local community		X	X	X	X	X
student perceptions of teaching effectiveness		X	X	X	X	X
sequential performance of students	X	X	X	X	X	X
peer ratings		X	X	X	X	X
publications		X	X	X	X	X
committee work	X	X	X	X	X	X
community service projects		X	X	X	X	X

Subsystem and Data Components	Dimension		Level of Analysis			
	Fixed-Effectiveness	Value-Added	Institutional	Program	Dept./ Div.	Individual
professional awards and honors		X	X	X	X	X
external rating of departmental effectiveness	X	X	X	X	X	
management information	X		X	X	X	X
administrative ratings	X	X	X	X	X	X
compliance with professional development plans	X	X		X	X	X
use of multi-model instructional techniques	X	X	X	X	X	X
Cost Analysis						
Students						
institutional costs per FTE student	X		X	X	X	
revenue support per FTE student student fees state aid financial aids	X		X			

Subsystem and Data Components	Dimension		Level of Analysis			
	Fixed-Effectiveness	Value-Added	Institutional	Program	Dept./Div.	Individual
Instruction						
unit cost per FTE student	X		X	X	X	
instructional cost	X		X	X	X	X
cost of instructional materials and equipment	X		X	X	X	X
energy and maintenance costs	X		X	X	X	X
instructional support staff and services	X		X	X	X	X
Community						
unit cost of community educational programs and services	X		X	X	X	
cost of institution	X		X			
cost of facilities	X					
cost of instructional support services	X		X	X	X	X

Subsystem and Data Components	Dimension		Level of Analysis			
	Fixed-Effectiveness	Value-Added	Institutional	Program	Dept./Div.	Individual
revenue support for community educational program	X		X	X	X	
student fees	X		X			
state aid	X		X			
federal or regional grants	X		X			
Finance						
relationship of budget revenues to budget expenditures	X		X	X	X	
Facilities						
plant construction or modification	X		X	X	X	
cost of equipment	X		X	X	X	
maintenance and energy costs	X		X	X	X	
security and safety costs	X		X	X	X	
rental costs						
Manpower						
administrative costs	X		X	X	X	X
salaries	X		X	X	X	X

Subsystem and Data Components	Dimension		Level of Analysis			
	Fixed-Effectiveness	Value-Added	Institutional	Program	Dept./Div.	Individual
benefits	X		X	X	X	X
staff support services	X		X	X	X	X
facilities utilization	X		X	X	X	X
travel	X		X	X	X	X
instructor costs	X		X	X	X	X
salaries	X		X	X	X	X
benefits	X		X	X	X	X
staff support services	X		X	X	X	X
facilities utilization	X		X	X	X	X
travel	X		X	X	X	X
board of trustees, external community agencies, and consultant costs	X		X	X	X	

DEVELOPMENT OF AN INSTRUCTIONAL ACTIVITY INDEX AT THE UNIVERSITY OF MASSACHUSETTS/AMHERST

Robert T. Lewis
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In a period of financial exingency educational managers are faced with the problem of allocating resources in an effective manner. Because there is no single overriding consideration on which to base decisions, a variety of factors must be considered. In an effort to fill this need the Office of Institutional Studies at UMass/Amherst has developed an instructional activity index composed of twelve data items. It is the purpose of this paper to describe this index and the results obtained from it.

At UMass/Amherst the development of the activity index has been directed at the following three objectives:

1. measurement of instructional activity by academic department
2. classification of academic departments on the basis of an index
3. preliminary review by an academic review task force

Equally important are the limitations imposed by such an index. The following seven constraints are offered:

1. inclusion of only quantifiable data
2. exclusion of qualitative data
3. mostly imput type measures; e.q., costs and workloads
4. only one output type measure; e.q., degrees
5. use of data weightings; i.e. subjective
6. limited to one years data; i.e. static in time
7. descriptive in nature, not prescriptive

Table 1 depicts the twelve data elements employed in the UMass/ Amherst instructional activity index. Data elements one, two, and three relate to costs; data elements four through nine relate to faculty workloads; data element ten is a measure of student workload; data element eleven is a measure of departmental service; and data element twelve is a measure of departmental output. Measures of research and public service activity have not been included.

An index was constructed for academic departments at the undergraduate, graduate, and combined levels. Excluded were departments for which one or more of the twelve data elements could not be computed. Therefore, of the 79 academic departments at UMass/Amherst 55 were included in the undergraduate analysis, 50 in the graduate analysis, and 59 in the combined analysis.

Based on standardized data (mean - zero, standard deviation - one) an index was calculated using the following equation:

$$\text{DATA INDEX} = \sum_{i=1}^{12} W_i \; (D_i - M_i) \;/\; S_i \Big/ \sum_{i=1}^{12} |W_i|$$

Where: W_i = Data Weights
D_i = Data Score
M_i = Mean
S_i = Standard Deviation

The magnitude and the direction of the data weights used in this equation are of particular importance. All data elements were assigned a weight of one; that is, they were all assumed to be of equal importance. The first three data weights (those relating to costs) were given negative signs. The remaining nine data weights (those relating to workloads) were given positive signs.

Data rankings of the twelve data elements were generated to display the range, median, and distribution skew of each item.

To some degree the twelve data elements included in this index are redundant. For instance, student credit hours per faculty (SPF) and student faculty ratio (SFR) are highly correlated. In order to relieve such degeneracy, a principle components factor analysis was performed on the data. Six factors accounting for over 90% of the variance were extracted in all three analyses (undergraduate, graduate, and combined). The resulting factor loadings and percent of variance for the undergraduate data are presented in Table 2, those for the graduate data in Table 3, and those for the combined data in Table 4. In each analysis productivity and cost items load heavily on the first factor which accounts for over 35% of the variance.

With these six factors, which are uncorrelated, an index was computed using the following equation:

$$\text{FACTOR INDEX} = \sum_{i=1}^{6} W_i \; F_i \; / \sum_{i=1}^{6} |W_i|$$

Where: W_i = Factor Weights

F_i = Factor Score

Factors were assigned weights in proportion to the variance explained. The signs of the factor weights were chosen to coincide with those used in the data index. Where the choice of signs was not clear, the selection was made so as to maximize the correlation between the factor index and the data index.

Based on the factor index, departments were assigned to one of three groups. Group 1 included all departments with a factor index less than -.5. Group 2 included all departments with a factor index between -.5 and +.5. Group 3 included all departments with a factor index greater than +.5. With these three groups and the six factors, a discriminant analysis was performed to determine the reliability of classifying departments in this manner. The results are presented in Table 5. For the undergraduate data and the combined data the assignment of departments to groups is roughly equal. That is, there are seven departments in Group 1 and nine departments in Group 3 with the remainder in Group 2. However, the graduate data shows a marked collapsing towards Group 2. Also, in each analysis the percentage of departments correctly classified as belonging to Groups 1 and 3 is 100. The percentage correctly classified as belonging to Group 2 ranges from 88 to 98.

The development of an instructional activity index at UMass/Amherst has provided an objective tool for classifying academic departments on the basis of their instructional activity. The index has much intuitive appeal and can be used to make distinctions which are reliable. However, the validity of the technique is yet to be established. It will be interesting to see in succeeding years how stable are the factors extracted from this data. Nonetheless, this tool is currently in use as a preliminary screening instrument by the Academic Review Task Force at UMass/Amherst.

TABLE 1

DATA DEFINITIONS

	DATA ELEMENT	ACRONYM	COMMENT
1.	Instructional Cost Index	ICI	"The Instructional Cost Index", Beatty, Gulko, Sheehan
2.	Cost Per Instructional Full-Time Equivalent Student	CPI	Total $/I.F.T.E.
3.	Average Faculty Salary	AFS	Total Faculty $/F.T.E. Faculty
4.	Faculty Instructional Load	FIL	Faculty Activity Analysis
5.	Average Faculty Load	AFL	C.C.H./F.T.E. Faculty
6.	Student Credit Hour Per Faculty	SPF	S.C.H./F.T.E. Faculty
7.	Class Contact Hours	CTH	Faculty Activity Analysis
8.	Student-Faculty Ratio	SFR	I.F.T.E./F.T.E. Faculty
9.	Average Class Size	ACS	S.C.H./C.C.H.
10.	Average Student Load	ASL	S.C.H./Headcount Students
11.	I.F.T.E. - A.F.S.M. Ratio	IAR	I.F.T.E./A.F.S.M.
12.	Degrees Per Faculty	DPF	Degrees/F.T.E. Faculty

TABLE 2

FACTOR LOADINGS

UNDERGRADUATE

	FACTOR 1	FACTOR 2	FACTOR 3	FACTOR 4	FACTOR 5	FACTOR 6
SPF	3					
SFR	3					
CPI	-3			1		
ICI	-3			1		
ACS	2		-2			
IAR		3				
DPF	1	-3			1	
AFL	1		3			
AFS				3	-1	
CTH			1	-1	3	
ASL						3
%	37.6	14.9	14.5	12.1	10.8	10.0

Scale: 3 = .76 - 1.00
2 = .51 - .75
1 = .26 - .50
Blank = .00 - .25

TABLE 3

FACTOR LOADINGS

GRADUATE

	FACTOR 1	FACTOR 2	FACTOR 3	FACTOR 4	FACTOR 5	FACTOR 6
SFR	3					
SPF	3					
AFL	3				-1	
DPF	3			-1		
CTH	2		1	1		
ICI		3				
CPI		3				
ASL			3			
IAR				3		
ACS					3	
AFS						3
%	34.7	20.3	12.0	11.7	11.1	10.2

Scale: 3 = .76 - 1.00
2 = .51 - .75
1 = .26 - .50
Blank = .00 - .25

TABLE 4

FACTOR LOADINGS

COMBINED

	FACTOR 1	FACTOR 2	FACTOR 3	FACTOR 4	FACTOR 5	FACTOR 6
SPF	3					
SFR	3					
ICI	-3			2		
CPI	-3			2		
ACS	3				-2	
FIL		3				
CTH		3				
IAR			3			
DPF	1		-3			1
AFS				3		
AFL	1				3	
ASL			-1			3
%	35.9	16.6	14.0	13.0	11.7	8.8

Scale: 3 = .76 - 1.00
2 = .51 - .75
1 = .26 - .50
Blank = .00 - .25

TABLE 5

RESULTS OF DISCRIMINANT ANALYSIS

(No. in Group/% Correctly Classified)

UNDERGRADUATE

GROUP 1	GROUP 2	GROUP 3
7/100.0	39/92.3	9/100.0

GRADUATE

GROUP 1	GROUP 2	GROUP 3
2/100.0	44/97.7	[illegible]/100.0

COMBINED

GROUP 1	GROUP 2	GROUP 3
7/100.0	43/88.4	9/100.0

ARTICULATION AT CUNY UNDER OPEN ADMISSIONS

Lawrence Podell, Judith Piesco and Lou Genevie
City University of New York

Open admissions -- the guarantee to all New York City high school graduates (from June 1970 onward) of a place in the City University of New York -- was made policy in 1969 and implemented in September 1970. However, high school academic average (known as college admissions average) continued to be a major influence upon admission to senior colleges.

Less known are the articulation policies, established in 1969-70 and strengthened in 1972-73, which facilitate the transfer of graduates of CUNY community colleges to its senior colleges by insuring the latter's acceptance of students with Associate degrees.

We have followed through time students admitted to CUNY community colleges under the open admissions policy in Fall 1970 or Fall 1971 who, upon being graduated, transferred to CUNY senior colleges in Fall 1973. In a few months, data will become available up to June, 1975: ten semesters for 1970 enrollees and eight semesters for 1971 enrollees. This will involve four semesters in senior college of Fall 1973 transfers, allowing us to include data on receipt of baccalaureate degrees in the analysis. At this writing, however, data are available only up to January, 1974: seven semesters for the 1970 enrollees and five semesters for the 1971 enrollees, including their initial semester in senior college. This is a report of transfers' academic performance (credits attempted, credits earned, and grade point average) during that -- their articulation -- semester in senior college and their reenrollment the following semester.

For each of these variables, the data will be controlled upon past performance (college admissions average from high school, cumulative grade point average prior to articulation, and grade point average in the semester preceding articulation).

In order to provide comparative perspective, these data are also provided for students who originally enrolled at the senior colleges (termed "natives") in Fall 1970 and Fall 1971 and were lower juniors in Fall 1973.

Credits Attempted During the Articulation Semester

The majority of the students attempted between 12 and 15 credits during the articulation semester, with natives more likely to attempt higher credit loads than transfers. Among students who attempted fewer credits cumulative GPA appeared to be a factor for students native to the senior colleges but not for students who transferred from the community colleges.

Of the 1217 transfers in the study sample, there was data on 1178 who registered for courses at the beginning of the semester; data were available on credits and grades earned at the end of the semester for 1052. Of the 4168 natives, there was data on 4125 who registered for courses in the beginning of the semester; there were data on credits and grades received at the end of the semester for 4003. The students missing data may have dropped during the semester, or they may have received "incompletes" in all of their courses, or their records may be missing this information. At this time, it was not possible to identify the reason for each not having credits and grades.

TABLE 1: CREDIT-GRADE EARNERS

	TRANSFERS	NATIVES
Attempted Credits	1178	4125
Earned Credits-grades	1052	4003
No Credits-Grades	126	122
Percent	10.7%	3.0%

Let us now turn to those students who we know earned credits and grades at the end of the semester.

Credits Earned During the Articulation Semester

During the initial semester in senior college, transfers from CUNY community colleges earned fewer credits than lower juniors in CUNY senior colleges. This was true even when the data were controlled on such prior performance variables as college admissions average from high school, cumulative grade point average up to the time of transfer, and grade point average in the preceding semester.

Less than half of the community college transfers earned twelve or more credits while, among senior college juniors, the proportion was two-thirds; over twenty percent of the transfers earned less than eight credits, in contrast to ten percent of the natives.

In both groups, prior performance was related to credits earned during that semester:

- -- The lower the college admissions average (the high school academic average), the fewer the number of credits earned.
- -- The lower the grade cumulative point average and the GPA during the preceding semester; the fewer the number of credits earned during the transfer semester.

Grade Point Average During the Articulation Semester

During the initial semester in senior college, the percentage of transfers who earned a GPA below 2.0 was double that of natives. In both groups, prior performance was related to GPA earned during that semester:

- -- The higher the college admissions average from high school, the higher the GPA earned during the articulation semester. The differences between transfers and natives was smaller when controlled on prior performance in college.
- -- The higher the cumulative GPA up to the semester preceding the transfer, the higher the GPA during the articulation semester. The differences between transfers (whose cumulative GPA was earned in community colleges) and natives (whose cumulative GPA was earned in senior colleges) were especially large among those with a cumulative GPA of 3.0 and above: five out of ten transfers among them earned a semester GPA of 3.0, while the corresponding proportion of native juniors was eight out of ten.
- -- Similarly, the higher the GPA earned in the semester preceding the transfer, the higher the GPA in the articulation semester. Again, the differences between transfers and natives on this variable, describing prior performance in high school.

GPA-Credit Combinations

The graduation from senior college of students who earned less than eight credits and a GPA of under 2.0 in the articulation semester may be viewed as "less promising." Transfer students are somewhat more likely to be in this category than native students. Also more likely to be in this category are students with:

-- a lower college admissions average from high school,

-- a lower cumulative GPA prior to the transfer semester,

-- a lower GPA in the semester prior to the transfer.

There will probably be more baccalaureates from among the students who earned twelve or more credits and a GPA of 2.0 or over in the articulation semester. Native students were more likely to be in the "more promising" category than transfers. Also more likely to be in this category were students with:

-- a higher college admissions average from high school,

-- a high cumulative GPA prior to the articulation semester, and

-- a higher GPA in the semester prior to the transfer.

Reenrollment the Semester After Articulation

Transfer students were twice as likely to refrain from reenrolling the next semester as native students. The lower the cumulative GPA prior to articulation and the lower the GPA in the semester before articulation, the more likely was the student to drop out. It was the performance in college, not in high school, that was the better predictor.

Students who completed few credits and those who earned low GPA's at the end of the articulation semester were less likely to reenroll the next semester. This was true for transfers and natives alike.

In a few months tapes will become available which will contain data on receipt of baccalaureates, as well as on retention and performance in three additional semesters in senior college. Then, we will be able to see which of the tendencies exhibited in this initial semester of articulation continue, perhaps to become trends, and which, in time, will reverse. Such analyses will be important to the design and conduct of studies of articulation to be conducted at the colleges.

THE CEEB ADMISSIONS TESTING PROGRAM
SUMMARY REPORT SEMINAR

Ernest W. Beals
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College Entrance Examination Board

The Admissions Testing Program (ATP) Summary Report Service of the College Entrance Examination Board provides a vast bank of student data easily accessible to institutional researchers. Too often, however, these data go unnoticed or untapped by institutional researchers.

The purpose of my presentation was:

1. to describe and explain the populations of students on which the ATP data are available (national, regional, states, groups of institutions, and individual institutions);
2. to describe and illustrate the data content and the formats in which the data are displayed in the twenty-one basic tables of the summary reports;
3. to discuss with the researchers ways of extracting, interpreting, using and displaying the data;
4. to teach institutional researchers how to retrieve ATP data by hands-on illustration via an on-line terminal hook-up with a central computer.

The presentation included both discussion and operational activities. Packets of materials were provided participants for use as a reference source and as practice materials.

The subject matter of the presentation consisted of identifying and studying the admissions application pool from the prospective applicant through the applied, accepted, enrolled and first-year persistence stages. These were examined as the bases for trend analyses over a period of years for follow-up studies and as descriptive profiles. The data content consisted of academic characteristics, socio-economic and demographic information, curriculum plans, educational aspirations, ethnic background, student activities, assistance needs and housing plans.

Speciman tables for a sample institution follow. (For added information see material on the ATP Program available from the Regional CEEB offices.)

COLLEGE BOARD
admissions testing program

Summary Report Work Sheet

1974 FRESHMAN CLASS

PART 1: HIGH SCHOOL BACKGROUND AND TEST SCORES	PROSPECTIVE APPLICANTS				APPLICANTS	ACCEPTED APPLICANTS	ENROLLING FRESHMEN		
	ALL COLLEGES	4-YEAR PRIVATE COLLEGES	CONN. CONF INDEPENDENT COLLEGES	SAMPLE COLLEGE A	SAMPLE COLLEGE A	SAMPLE COLLEGE A	SAMPLE COLLEGE A		
I. SEX									
% Males/Females	–	–	51.4/48.6	55.3/44.7	55.4/44.6	53.9/46.1	52.4/47.6		
II. HIGH SCHOOL TYPE (Table 1)									
% from Public Schools	83	80	73	68	67	69	68		
III. ETHNIC BACKGROUND (Table 2)									
% Minority Students	8	8	12	7	7	10	14		
IV. HIGH SCHOOL RECORD									
(A) Subject Grade Point Averages (Table 3)									
English Average	3.19	3.26	3.37	3.40	3.45	3.60	3.52		
Mathematics Average	2.75	2.83	3.08	3.14	3.19	3.40	3.27		
Foreign Language Average	2.91	3.00	3.16	3.20	3.25	3.48	3.38		
Biological Science Average	3.01	3.07	3.24	3.29	3.34	3.53	3.41		
Physical Science Average	2.91	2.95	3.18	3.23	3.29	3.49	3.37		
Social Studies Average	3.23	3.28	3.41	3.46	3.51	3.68	3.62		
(B) Self-Reported Class Rank (Table 5)									
% in First Tenth	19	23	40	42	44	64	52		
% in First Fifth	45	49	64	72	76	88	81		
% in First or Second Fifth	76	78	85	92	94	98	97		
(C) Overall Grade Point Average (Table 6)	3.06	3.12	3.27	3.32	3.37	3.55	3.45		
V. TEST SCORES									
(A) Scholastic Aptitude Test									
Verbal Average (Table 7A)	438	454	519	543	553	588	562		
% SAT-V Above 600	-	-	31	31	34	52	39		
% SAT-V Above 500	-	-	58	70	74	87	86		
% SAT-V Above 400	-	-	84	92	94	97	94		
Reading Subscore Average (Table 7B)	-	-	-	-	-	-	-		
Vocabulary Subscore Average (Table 7B)	-	-	-	-	-	-	-		
Mathematical Average (Table 7A)	468	482	548	577	586	623	602		
(B) Test of Stnd. Written English Avg. (Table 7C)	-	-	-	-	-	-	-		
(C) Achievement Tests (Table 8)									
Average of All Achievement Test Scores	508	516	573	576	579	617	596		

COLLEGE BOARD
admissions testing program

Summary Report Work Sheet

1974 FRESHMAN CLASS

PART 2: DEGREE GOALS AND FIELDS OF STUDY	PROSPECTIVE APPLICANTS				APPLICANTS	ACCEPTED APPLICANTS	ENROLLING FRESHMEN		
	ALL COLLEGES	4-YEAR PRIVATE COLLEGES	CONN. CONF INDEPENDENT COLLEGES	SAMPLE COLLEGE A	SAMPLE COLLEGE A	SAMPLE COLLEGE A	SAMPLE COLLEGE A		
[illegible]									
(A) Degree Level Goals (Table 9)									
% Two year Program or Less	4	3	4	1	0	0	0		
% BA or BS	31	31	20	16	15	12	17		
% Graduate Study	34	40	57	65	66	70	67		
% Undecided	25	23	19	19	18	18	16		
(B) Intended Area of Study (Table 10)									
% Agriculture	1	1	1	0	0	0	0		
% Architecture/Environmental Design	1	1	2	1	1	1	2		
% Art	2	2	3	2	2	2	3		
% Biological Sciences	10	11	17	21	21	22	20		
% Business and Commerce	10	8	8	6	5	4	6		
% ~~Communications~~ Journalism	2	2	2	1	1	1	2		
% Computer Science	1	0	1	0	0	0	0		
% Education	8	7	5	3	3	1	1		
% Engineering	4	2	3	3	2	2	2		
% English and Literature	3	3	5	8	8	10	9		
% Ethnic Studies	0	0	0	0	0	0	0		
% Foreign Language	1	2	2	4	4	5	5		
% Forestry and Conservation	–	–	–	–	–	–	–		
% Geography	–	–	–	–	–	–	–		
% Health ~~Related Professions~~ Nursing	8	6	9	2	2	2	1		
% History and Cultures	2	2	2	3	4	3	3		
% Home Economics	1	1	1	0	0	0	0		
% Library Science	–	–	–	–	–	–	–		
% Mathematics	3	3	3	4	4	6	5		
% Military Science	–	–	–	–	–	–	–		
% Music	2	2	3	1	1	2	2		
% Philosophy and Religion	0	1	1	1	1	1	1		
% Physical Science	2	3	4	4	4	4	5		
% Psychology	3	4	4	6	6	5	4		
% Social Science	9	10	15	19	21	19	21		
% Theater Arts	–	–	–	–	–	–	–		
% Trade and Vocational	2	1	1	0	0	0	0		
% Other	–	–	–	–	–	–	–		
% Undecided	8	7	7	9	9	10	8		

COLLEGE BOARD
admissions testing program

Summary Report Work Sheet

1974 FRESHMAN CLASS

PART 3: COLLEGE PLANS, ACTIVITIES, AND FINANCES	PROSPECTIVE APPLICANTS				APPLICANTS	ACCEPTED APPLICANTS	ENROLLED FRESHMEN		
	ALL COLLEGES	4-YEAR PRIVATE COLLEGES	CONN. CONF INDEPENDENT COLLEGES	SAMPLE COLLEGE A	SAMPLE COLLEGE A	SAMPLE COLLEGE A	SAMPLE COLLEGE A		
VII. COLLEGE PLANS									
(A) Special Assistance (Table 11)									
% Education/Vocational Counseling	46	47	46	44	44	47	45		
% Mathematical Skills	24	24	18	16	15	12	11		
% Reading Skills	19	20	18	18	18	16	17		
% Writing Skills	20	21	21	23	23	20	21		
% Study Skills	27	27	21	18	17	13	14		
% Part-time Work	47	47	43	37	35	39	40		
% Personal Counseling	8	9	9	9	9	11	10		
(B) Advanced Placement or Course Credit (Table 12)									
% Planning to Apply	55	56	59	59	59	66	67		
(C) Housing Preference (Table 13)									
% Single Sex Dorm	29	33	26	24	25	24	19		
% Coed Dorm	25	27	47	57	60	62	64		
VIII. ACTIVITIES									
% More than Nominal Participation in Community and Church Groups (Table 14)	69	71	69	72	73	74	72		
% Participating in H.S. Varsity Athletics (Table 15)	37	36	44	54	58	57	60		
% Holding Major Office in H.S. Club or Organization (Table 16)	37	40	46	51	55	62	57		
% Receiving a H.S. Honor or Award (Table 17)	52	56	63	63	65	80	77		
IX. FINANCES									
(A) Parental Contribution Toward Education (Table 20)									
Median Contribution (in thousands)	–	–	–	–	–	–	–		
% Below $625	26	24	20	14	11	12	14		
% At or Above $2,400	–	–	41	51	54	49	45		
(B) Parental Income (Table 21)									
Mean Income (in thousands)	17	18	21	25	26	25	24		
Median Income (in thousands)	–	–	–	–	–	–	–		
% Below $12,000	38	36	29	22	19	21	22		
% Above $18,000	31	34	45	55	59	56	58		

SUMMARY REPORT HIGHLIGHTS

1974 FRESHMAN CLASS AT SAMPLE COLLEGE A

1. Almost 5% more men than women.

2. Twice the proportion of minority students enrolled as in prospective applicant group.

3. Grade point averages in all six academic areas are consistently higher for enrolled freshmen than for prospective applicants and consistently lower than for accepted applicants.

4. The overall grade point average (GPA) is B+ or better for all groups with the highest GPA in the accepted applicant group.

5. 97% of enrolling freshmen are in the upper two fifths of their high school class.

6. The SAT verbal average for enrolled freshmen is nine points higher than the average for applicants but twenty-six points below the average for accepted applicants.

7. The SAT mathematical average for enrolled freshmen is sixteen points higher than the average for applicants and twenty-one points below the average for accepted applicants.

8. The average of all achievement test scores for enrolling freshmen was better by twenty points than that for prospective applicants, better by seventeen points than that for applicants but twenty-one points below that of the accepted applicants.

9. Fewer of the enrolling freshmen were undecided about their educational goals than were the members of any applicant group.

10. There was little variation among the four groups as far as intended area of study was concerned.

11. A significantly greater percentage of the accepted applicants and enrolling freshmen than prospective applicants or applicants planned to apply for Advanced Placement or course credit.

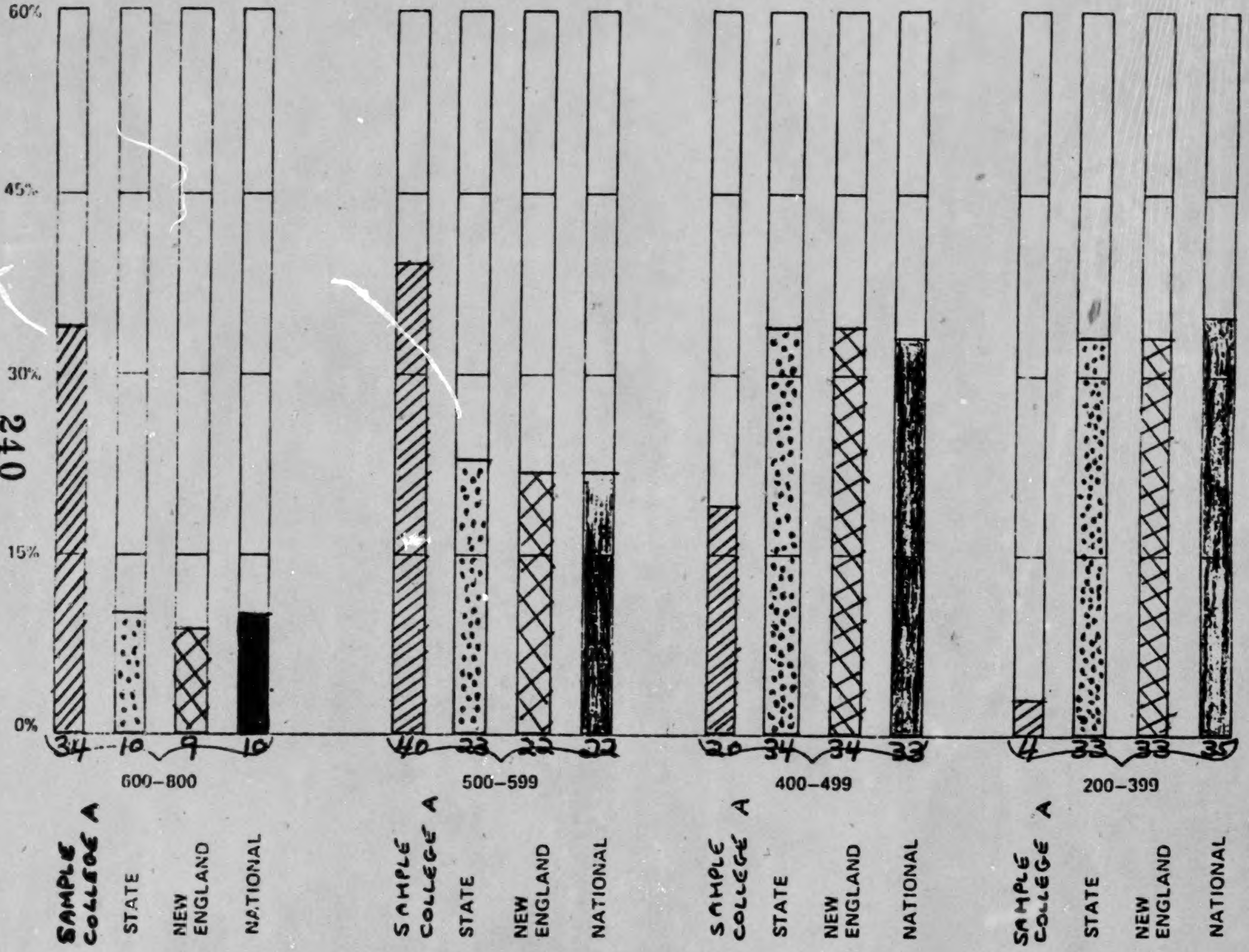
12. Nine percent fewer of the enrolling freshmen than applicants could expect a parental contribution towards their college education of $2,400 or more.

SAT VERBAL

COLLEGE BOUND SENIORS

1973-1974

TABLE 7



SAMPLE COLLEGE A
1974 FRESHMAN CLASS

ADMISSIONS-YIELD TABLE
(one-way analysis)

SCORES	ADMISSIONS STATUS				
	Prospective Applicants	Applicants	Accepted Applicants	Enrolling Freshmen	Persisting Freshmen
SAT VERBAL 600-800	1186	838 71%	558 47%	151 27%	
SAT VERBAL 400-599	2273	1469 65%	490 33%	214 44%	
SAT VERBAL 200-399	259	110 42%	26 24%	18 69%	
MATH SAT 600-800	1675	1149 68%	695 60%	219 32%	
400-599	1868	1198 64%	371 31%	160 43%	
200-399	175	70 40%	8 11%	4 50%	
ACHIEVEMENT AVERAGE 600-800	1352	975 72%	686 70%	204 30%	
400-599	1957	1341 68%	376 28%	166 44%	
200-399	56	33 59%	3 9%	2 67%	
TOTAL					

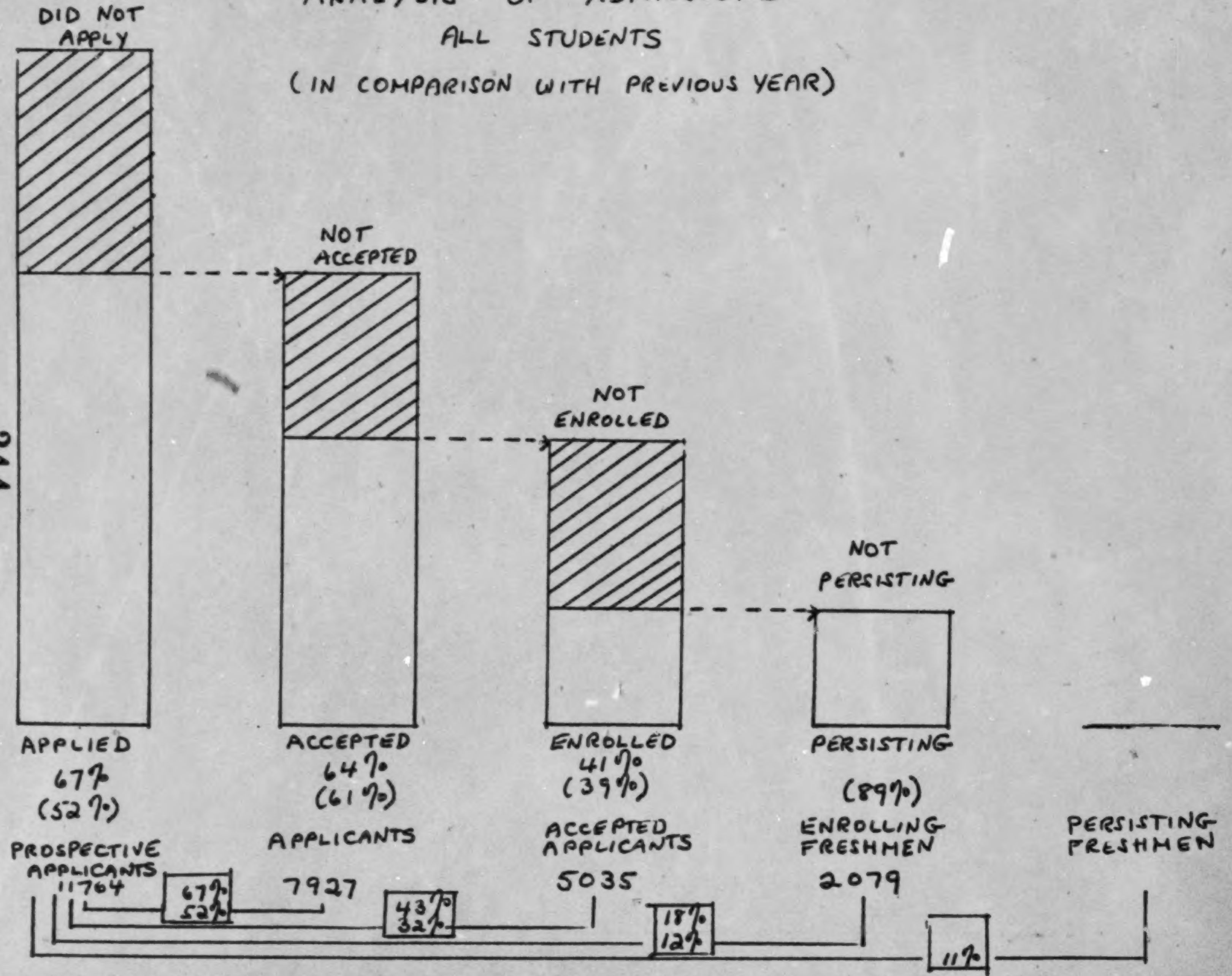
SAMPLE COLLEGE A
1974 FRESHMAN CLASS
ADMISSIONS-YIELD TABLE
(one-way analysis)

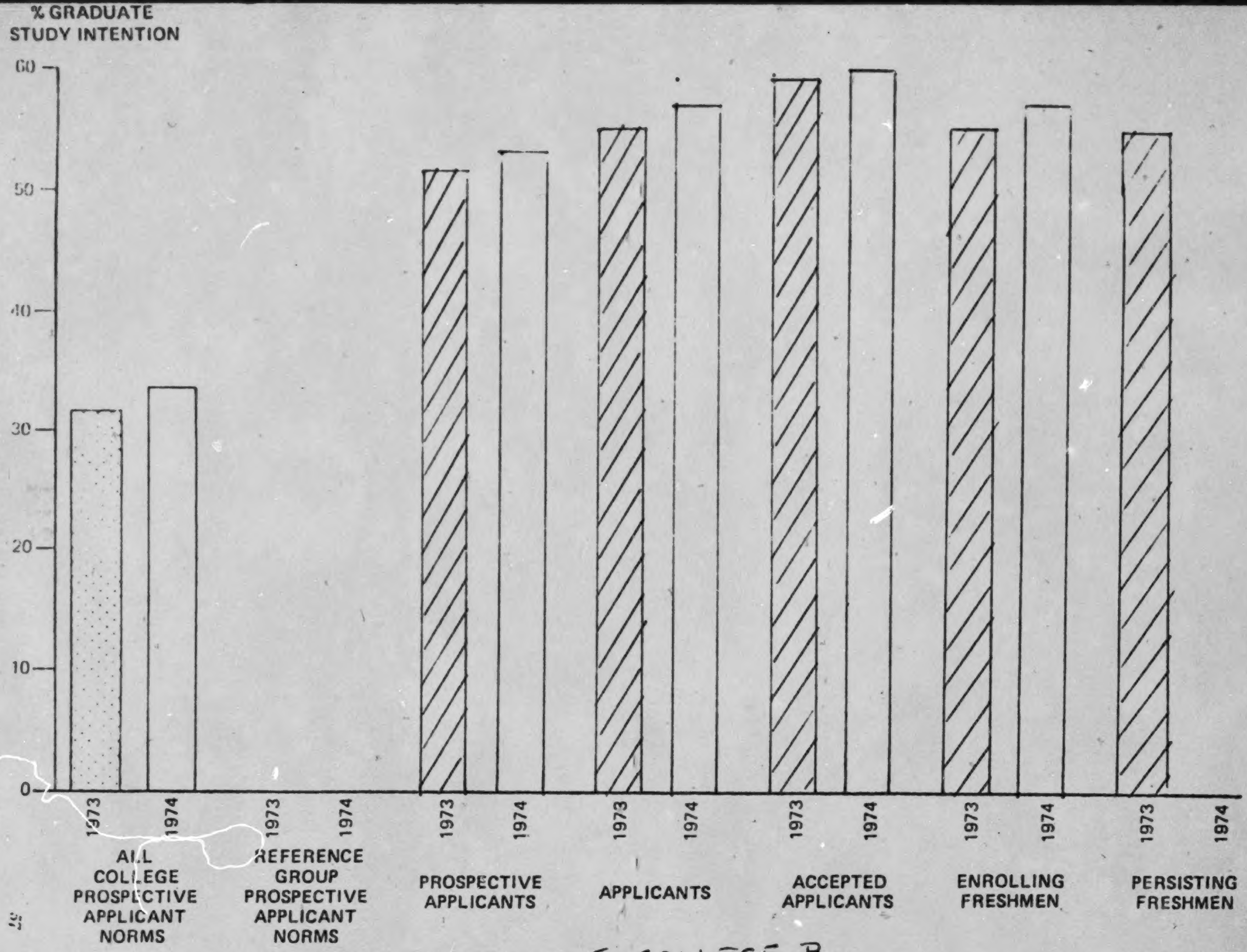
INTENDED FIELD OF STUDY	ADMISSIONS STATUS				
	Prospective Applicants	Applicants	Accepted Applicants	Enrolling Freshmen	Persisting Freshmen
ART	48	30 62%	13 43%	7 54%	
BIOLOGICAL SCIENCES	501	310 62%	144 46%	47 33%	
BUSINESS + COMMERCE	143	74 52%	26 35%	14 54%	
EDUCATION	72	44 61%	7 16%	2 29%	
ENGINEERING	72	30 42%	13 43%	5 38%	
ENGLISH	191	118 62%	66 56%	21 32%	
FOREIGN LANGUAGE	96	59 61%	33 56%	12 36%	
HISTORY + CULTURES	72	59 82%	20 34%	7 35%	
MATHEMATICS	96	59 61%	39 66%	12 31%	
PHYSICAL SCIENCE	96	59 61%	26 44%	12 46%	
PSYCHOLOGY	143	88 62%	33 38%	9 27%	
SOCIAL SCIENCE	454	310 68%	125 40%	49 39%	
TOTAL	1984	1240 62%	545 44%	197 36%	

APPLICANTS COMPARED WITH ACCEPTED APPLICANTS
SAMPLE COLLEGE 1973-1974
ADMISSIONS-YIELD TABLE
(two-way analysis)

ETHNIC GROUP	PARENTAL CONTRIBUTION					TOTAL
	UNDER $625	$625 - $1799	$1800 - $2699	$2700 - $3599	OVER $3600	
BLACK	24 11 46%	10 5 50%	3 2 67%	1 0 0	5 3 60%	42 21 49%
ORIENTAL	3 3 100%	5 5 100%	0 0 100%	2 2 100%	0 0 0%	10 10 100%
PUERTO RICAN	5 4 80%	0 0 100%	1 0 0%	0 0 100%	1 1 100%	7 5 71%
WHITE	70 25 36%	237 108 46%	105 51 48%	105 40 38%	369 141 38%	886 365 41%
NO ETHNIC RESPONSE	3 2 67%	4 2 50%	1 0 0%	0 0 0%	4 3 75%	12 7 58%
TOTAL	105 45 43%	256 120 47%	110 53 48%	108 42 39%	379 148 39%	958 408 43%

SAMPLE COLLEGE B
1974 FRESHMAN CLASS
ANALYSIS OF ADMISSIONS
ALL STUDENTS
(IN COMPARISON WITH PREVIOUS YEAR)





SAMPLE COLLEGE B
FRESHMAN CLASSES
1973 + 1974

OPEN ADMISSIONS AT THE CITY UNIVERSITY OF NEW YORK: AN ASSESSMENT OF STUDENT ATTENDANCE AFTER FOUR YEARS

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City University of New York

An open admissions policy was implemented by the City University of New York in fall 1970. This policy, which guarantees NYC high school graduates admission to one of CUNY's colleges, had an immediate impact on the University. As shown in Table 1, there was a substantial increase in the number of applicants, especially among those with low high school (or college admissions) averages and those from New York City residential areas of minority and low median family income population concentration. Prior to 1970, applicants with below 70 academic averages were not accepted to matriculant status at CUNY except as special program admissions. Since 1970, they all are accepted as regular matriculants; slightly more than half of them enroll.

An important objective of open admissions is to avoid the high student attrition which has frequently characterized other higher education open access models. Because of interest in the extent to which this and other objectives are being attained, we have been following the attendance and performance at CUNY of entering fall cohorts since 1970.

This report, part of an on-going research activity, concerns the attendance at CUNY of the first open admissions students (the September 1970 freshmen) and their status (enrolled or not, graduated or not) after four years (or eight semesters).

In a few months, eight semesters of data on performance (e.g., GPA, credit accumulation) and field of major interest will become available, thereby allowing us to relate these and other factors to patterns of attendance. For now, we describe the retention and graduation of the fall 1970 cohort and the variations by college level, high school average (also known as college admissions average), sex, residential area characteristics, and rank order of high school. We also compare these students with subsequent CUNY fall cohorts, with CUNY students prior to open admissions, and with a national sample of students at public four year and two year colleges.

In utilizing the data of this report, the following should be kept in mind:

--First, the data have been tabulated by college of original enrollment; intra-CUNY transfers (e.g., from community colleges to senior colleges) are thereby counted as retained or graduated from their first semester college.

--Second, students who left the University without having graduated are counted as attrited, even though they may have transferred to and been graduated from a college outside the CUNY system. Information is not available on the number of students in this category (i.e., those who transferred out) nor on their current status.

--Third, the graduation and retention figures reported do not reflect the total numbers of graduates from and enrollees at CUNY in the semesters shown. Excluded from these data are: first-time freshmen in the spring or summer semesters; evening non-matriculated, and part-time students; and students transferring to CUNY from other institutions.

I. GRADUATION AND RETENTION: 1970 FRESHMEN

Summary data for four years (i.e., eight semesters) of enrollment are presented in Charts A (senior college) and B (community college).

By the end of eight semesters (spring 1974), 21.4% of the fall 1970 senior college freshmen received Bachelor's degrees. Another 35.2% were enrolled but did not graduate in the eighth semester; most of these students attended CUNY without interruption (Chart A, Box D).

Tracking the community college enrollees in like manner is more complicated because they are more likely than the senior college enrollees to transfer to another college level. As shown in Chart B, of students who originally enrolled at community colleges in the fall 1970, 23.1% received Associate's degrees by the end of eight semesters; almost 3% earned Bachelor's degrees from CUNY senior colleges (Chart B, Boxes C and J), 7.7% were still enrolled at a community college in the eighth semester (Box M), and 14.5% were attending a senior college (Boxes D and K).

Those students who transferred to senior colleges with the Associate degree (Box B) were more likely to have graduated from a senior college or still to be enrolled there in the eighth semester than students who transferred without the degree (Box I).

The data in Table 2 afford a better opportunity to compare the two college levels as well as to examine differences by high school average categories. Senior college enrollees showed a substantially greater graduation-retention rate than those in community colleges; however, the rate of return after withdrawal (students who attended, left, and then returned by the eighth semester or graduated) was slightly higher at the senior than community colleges.

Return rates have been a topic of interest in the City University because they are thought to be indicative of the "stopout phenomenon," an attendance pattern believed to be prevalent at CUNY even before open admissions. This belief is partially supported in a study (Max, 1968) of students who entered Brooklyn, City, Hunter, and Queens Colleges in 1960: After four years, 47.8% graduated; after seven years 70.6% graduated. When data covering enrollment after five years become available, we will be able to examine in greater detail the "stop-out" issue and its impact on the graduation rate. At that time we will also have sufficient data to examine the "stretchouts," i.e., students who register for reduced credit loads thereby stretching out the time required for graduation.

A. High School Average

The data in Table 2 show a strong and positive relationship between high school average and graduation and retention at both senior and community college levels. (Rates of return to CUNY are also positively associated with high school average, but the relationship is not as strong.)

Differences between high school average categories (especially between those with 80 and above averages and those with averages below 70) tend to be more pronounced at senior colleges. It should be noted that (a) senior colleges were allocated a smaller proportion of students with below 70 high school averages than were the community colleges and (b) the senior college data refer to on-time graduation only, while the community college data included two years beyond the on-time graduation period, allowing more students with lower high school averages to be graduated.

B. Male and Female Students

Of the students who originally enrolled at CUNY in September 1970, women were much more likely to have been graduated than men. This is true at both college levels as can be seen from the data in Tables 3 and 4. Women were also more likely to have been graduated from a senior college after transferring from a community college. In fact, Baruch College was the only institution of CUNY in which the graduation rates of men and women were virtually the same; at all the others, the graduation rate was higher for women.

It may be of additional interest to note that the size of the difference between the proportion of men and women graduates increases as high school average increases. Graduation-retention rates at the senior colleges were slightly higher for women (only in the 80 and above high school average category did the rate for men surpass that of women); however, the graduation-retention rates at community colleges were substantially higher for women than men.

These findings are similar to those reported in other studies which also indicate that, in time, the gap between the proportion of women and men graduates either disappears or is reduced. Whether this occurs at CUNY will not be known for some time.

C. Residential Area Characteristics

The University data file on fall entering freshmen does not contain information on either the race-ethnicity or family income of students. Using data from the 1970 United States Census, it was possible to classify students' areas of residence (ZIP code) along these dimensions. This could only be done for students residing in New York City, and refers to their residence at the time of application to CUNY.

Race-Ethnicity: Students from areas with predominantly white population were most likely to have been graduated by the end of eight semesters; they also had the highest graduation-retention rates. Students from areas with predominantly black population were least likely to have been graduated. Students from areas with Puerto Rican population concentration had the lowest graduation-retention rates and return rates (Table 5).

Median Family Income: Graduation and retention were related to median family income of students' residential area. Those from areas with middle ($8,000-$11,999) and higher ($12,000 +) median family income were more likely to have been graduated and to have higher graduation-retention rates than those from areas of low (below $8,000) median family income (Table 6).

D. High School Rank

We were also interested in how retention and graduation rates varied among students from different high schools. Using data made available by the NYS Education Department, New York City public high schools were rank ordered and then grouped according to the average school score on a state-wide scholarship examination -- Group I schools had the highest average scores; Group IV schools had the lowest average scores.

As shown in Table 7, rank of the high school is related to retention and graduation at both college levels -- students from Group I high schools were most likely to have graduated or to have been retained after eight semesters. When controlling on students' high school academic average, the differences at the senior college level between students from Group I and Group II high schools disappear, at the community college level, the differences continue except for students with high school academic averages of 80 and above.

II. GRADUATION AND RETENTION: 1970, 1971, 1972, 1973 FRESHMEN

How has the graduation and retention experience of entering freshmen changed since fall 1970?

A. After Two Semesters

Retention data for two semesters are shown in Table 8 for senior colleges and Table 9 for community colleges.

The senior college cohorts show little difference in in their two semester retention rates. Among the community college cohorts, the two semester retention of the 1970 freshmen was slightly lower than that of the others.

B. After Four Semesters

Among the senior college cohorts, the four semester retention rate and return rate was highest for the 1970 freshmen. These rates were slightly lower for the 1971 freshmen and declined, again, for the 1972 freshmen (Table 10).

With one exception, the four semester community college data were similar for all cohorts. The exception was the return rates, which showed a successive decline for each cohort since 1970 (Table 11).

C. After Six Semesters

Retention rates and return rates were higher for the 1970 than 1971 senior college cohort (Table 12). At the community college level the graduation-retention rate and the percent graduated were the same for the 1970 and 1971 cohorts; return rates were higher for the 1970 cohort (Table 13).

III. COMPARATIVE DATA ON GRADUATION

We now consider some data on comparative graduation rates. Utilization of comparative data presents a number of problems. Among these are differences in data collection methods (which can involve self reports from students, registrar estimates, official transcripts, computerized data files), different academic year calendars (such as semester, trimester, and quarterly systems), different student populations, different admissions policies, different program requirements and grading practices, and different time periods. These problems affect the data discussed here.

A. CUNY Graduates: 1960 and 1970 Freshmen

Four year graduation rates of students who entered Brooklyn, City, Hunter, and Queens Colleges in 1960 and 1970 are presented in Table 14.

Of students who entered Brooklyn, City, Hunter, and Queens in the Fall 1960, 47.8% received a Bachelor's degree after four years. By comparison, only 23.0% of Fall 1970 freshmen at these colleges received a Bachelor's degree after four years. Among 1970 freshmen with high school averages of 85 and above (a more appropriate comparison group with 1960), 37.9% earned Bachelor's degrees after four years.

In both periods, Brooklyn College had the highest graduation rate while City College had the lowest (partly due to the 145 credits required for an engineering degree).

B. CUNY Data Compared to a National Sample

Data from national studies have been considered important since they are assumed to provide the necessary baseline by which the performance of City University students can be compared. Tables 15 and 16 present data for a national sample of students who entered two year and four year public colleges in 1966 and students who entered CUNY in 1970.

Some qualifications in the use of this comparison are required. First, the graduation comparisons are more valid than those for retention. In both studies, graduation refers to all students who graduated after eight semesters. Retention is defined in the national sample as enrollment for the ninth semester; for CUNY students retention is defined as enrollment in the eighth semester. Second, in the lowest high school average category (those with averages of less than 70) the actual number of students (10 for senior colleges and 19 for community colleges) in the national sample are too small to be a reliable comparison group for CUNY; therefore, they have been omitted from the tables.

The senior college data (Table 15) show that CUNY graduation rates after four years were lower than those for the national sample after four years. This was the case for each high school average category. However, CUNY graduation-retention rates (received degree or still enrolled) were higher than the national sample.

For community colleges, within each high school average category, the graduation and retention rates for the CUNY students were higher than those for the national sample (Table 16)

CUNY students appear to be taking longer to graduate than they used to and than is the case at other institutions. Hypothesis have been offered to explain this phenomenon (e.g., enrollment in noncredit remedial courses; smaller credit load each semester or noncontinuous enrollment, either of which may be due to inadequate academic preparation or to the need for part-time employment because of lower family income). Some of these hypotheses will be tested as more data become available; others will require additional research -- preferably with a longitudinal design -- involving data on student attributes, motives, and expectations and on program and staff characteristics.

Table 1: Number and Percent Change of Applicants to CUNY Day Session Between 1969 and 1972 by College Admissions Average, Race-Ethnicity and Median Family Income of Residential Area

	Number of ZIP Areas	Number of Applicants			Change: 1969-1972	
		1969	1970	1972	Number	Percent
College Admissions Average						
85% and above	166	11,540	10,975	11,353	- 187	-1.6%
Below 70%	166	3,274	9,827	14,435	+11,161	340.9
Race-Ethnicity of Residential Area						
Predom. black	10	1,149	2,617	3,496	+ 2,347	204.3%
Mostly black	11	2,442	4,474	6,277	+ 3,835	157.0
Puerto Rican	12	2,432	4,312	5,462	+ 3,030	124.6
Mostly white	25	4,809	6,661	8,475	+ 3,666	76.2
Predom. white	108	26,973	31,682	34,883	+ 7,910	29.3
Median Family Income of Residential Area						
$ 0- 5,999	9	1,408	2,946	3,797	+ 2,389	169.7%
6,000- 7,999	32	5,920	9,842	12,737	+ 6,817	115.2
8,000- 9,999	27	5,945	7,876	9,112	+ 3,167	53.3
10,000-11,999	54	14,979	17,807	20,826	+ 5,847	39.0
12,000-14,999	32	7,594	8,930	9,824	+ 2,230	29.4
15,000 & above	12	1,959	2,345	2,297	+ 338	17.2
TOTAL	166	37,805	49,746	58,593	+20,788	55.0%

CHART A: EIGHT SEMESTER GRADUATION/RETENTION/ATTRITION OF FALL 1970 SENIOR COLLEGE FRESHMEN

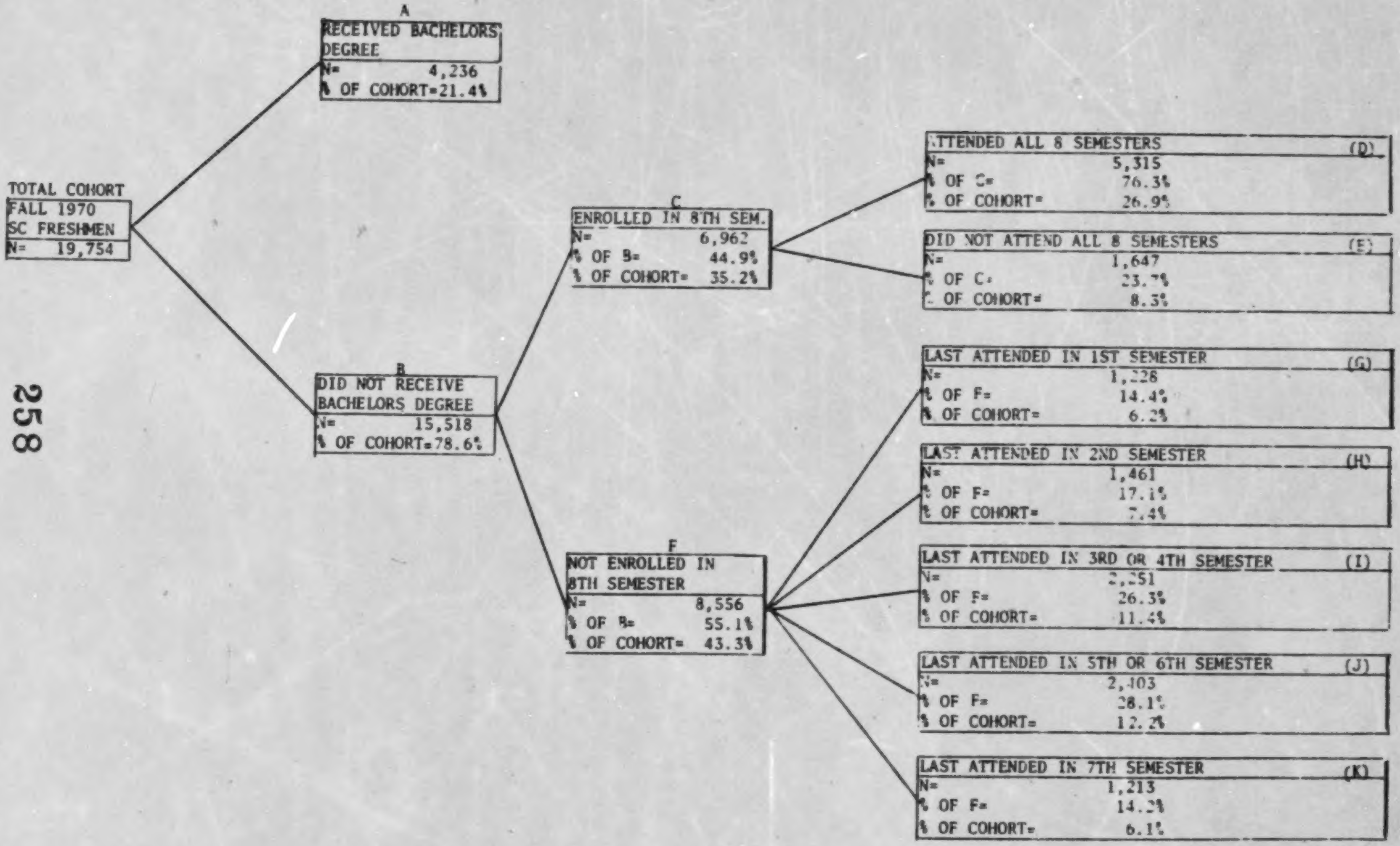
TOTAL COHORT
FALL 1970
SC FRESHMEN
N= 19,754
A
RECEIVED BACHELORS DEGREE
N= 4,236
% OF COHORT=21.4%
B
DID NOT RECEIVE BACHELORS DEGREE
N= 15,518
% OF COHORT=78.6%
C
ENROLLED IN 8TH SEM.
N= 6,962
% OF B= 44.9%
% OF COHORT= 35.2%
F
NOT ENROLLED IN 8TH SEMESTER
N= 8,556
% OF B= 55.1%
% OF COHORT= 43.3%
ATTENDED ALL 8 SEMESTERS (D)
N= 5,315
% OF C= 76.3%
% OF COHORT= 26.9%
DID NOT ATTEND ALL 8 SEMESTERS (E)
N= 1,647
% OF C= 23.7%
% OF COHORT= 8.3%
LAST ATTENDED IN 1ST SEMESTER (G)
N= 1,228
% OF F= 14.4%
% OF COHORT= 6.2%
LAST ATTENDED IN 2ND SEMESTER (H)
N= 1,461
% OF F= 17.1%
% OF COHORT= 7.4%
LAST ATTENDED IN 3RD OR 4TH SEMESTER (I)
N= 2,251
% OF F= 26.3%
% OF COHORT= 11.4%
LAST ATTENDED IN 5TH OR 6TH SEMESTER (J)
N= 2,403
% OF F= 28.1%
% OF COHORT= 12.2%
LAST ATTENDED IN 7TH SEMESTER (K)
N= 1,213
% OF F= 14.2%
% OF COHORT= 6.1%

CHART B: EIGHT SEMESTER GRADUATION/RETENTION/ATTRITION/TRANSFER OF FALL 1970 COMMUNITY COLLEGE FRESHMEN

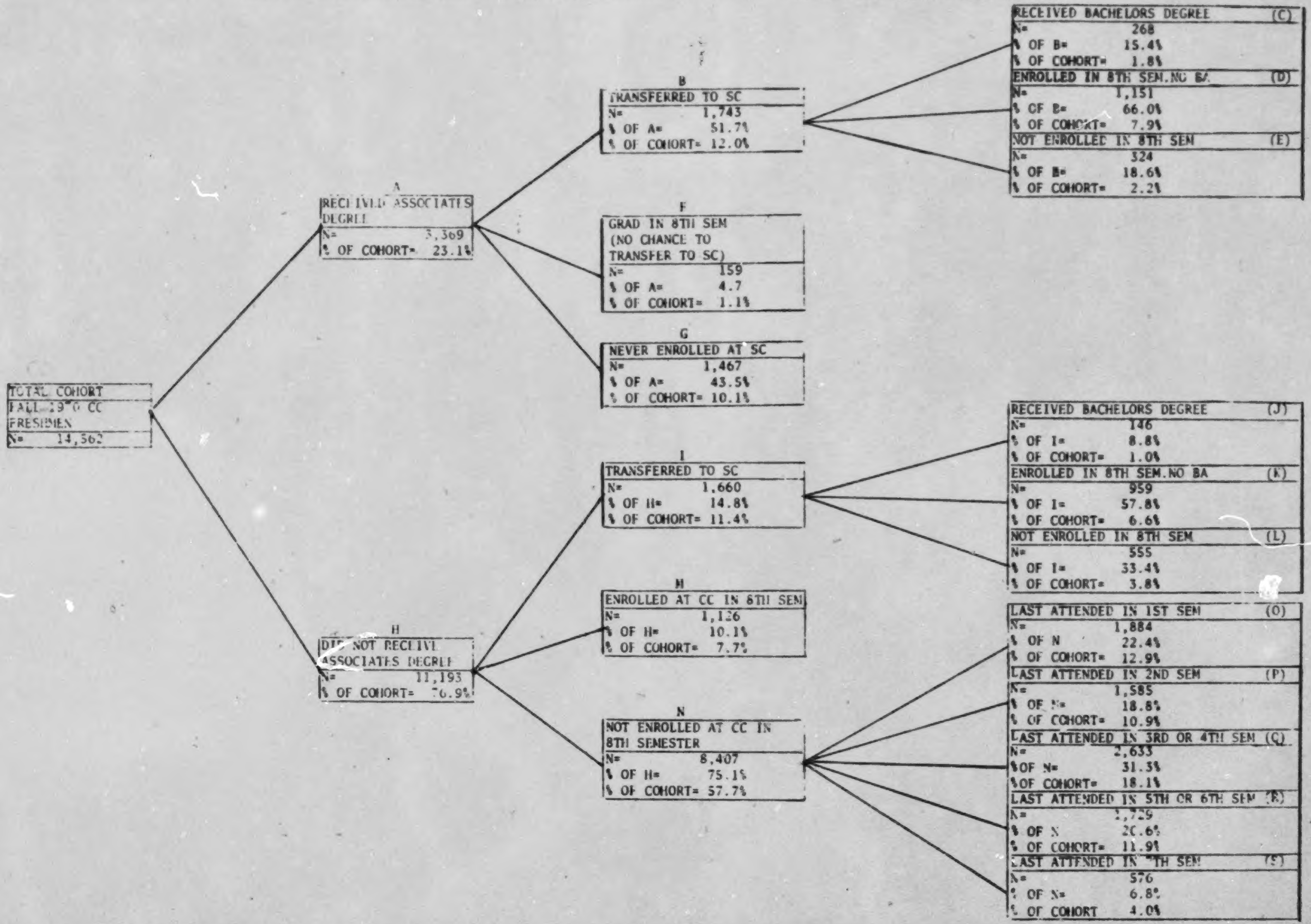
TOTAL COHORT
FALL 1970 CC
FRESHMEN
N= 14,562
A
RECEIVED ASSOCIATES DEGREE
N= 3,369
% OF COHORT= 23.1%
H
DID NOT RECEIVE ASSOCIATES DEGREE
N= 11,193
% OF COHORT= 76.9%
B
TRANSFERRED TO SC
N= 1,743
% OF A= 51.7%
% OF COHORT= 12.0%
F
GRAD IN 8TH SEM
(NO CHANCE TO
TRANSFER TO SC)
N= 159
% OF A= 4.7
% OF COHORT= 1.1%
G
NEVER ENROLLED AT SC
N= 1,467
% OF A= 43.5%
% OF COHORT= 10.1%
I
TRANSFERRED TO SC
N= 1,660
% OF H= 14.8%
% OF COHORT= 11.4%
M
ENROLLED AT CC IN 8TH SEM
N= 1,126
% OF H= 10.1%
% OF COHORT= 7.7%
N
NOT ENROLLED AT CC IN
8TH SEMESTER
N= 8,407
% OF H= 75.1%
% OF COHORT= 57.7%
RECEIVED BACHELORS DEGREE (C)
N= 268
% OF B= 15.4%
% OF COHORT= 1.8%
ENROLLED IN 8TH SEM.NO BA (D)
N= 1,151
% OF B= 66.0%
% OF COHORT= 7.9%
NOT ENROLLED IN 8TH SEM (E)
N= 324
% OF B= 18.6%
% OF COHORT= 2.2%
RECEIVED BACHELORS DEGREE (J)
N= 146
% OF I= 8.8%
% OF COHORT= 1.0%
ENROLLED IN 8TH SEM.NO BA (K)
N= 959
% OF I= 57.8%
% OF COHORT= 6.6%
NOT ENROLLED IN 8TH SEM (L)
N= 555
% OF I= 33.4%
% OF COHORT= 3.8%
LAST ATTENDED IN 1ST SEM (O)
N= 1,884
% OF N 22.4%
% OF COHORT= 12.9%
LAST ATTENDED IN 2ND SEM (P)
N= 1,585
% OF N= 18.8%
% OF COHORT= 10.9%
LAST ATTENDED IN 3RD OR 4TH SEM (Q)
N= 2,633
%OF N= 31.3%
%OF COHORT= 18.1%
LAST ATTENDED IN 5TH OR 6TH SEM (R)
N= 1,729
% OF N 20.6%
% OF COHORT= 11.9%
LAST ATTENDED IN 7TH SEM (S)
N= 576
% OF N= 6.8%
% OF COHORT 4.0%

Table 2: Eight Semester Graduation and Retention by High School Average[1], Fall 1970 Freshmen

College of Original Enrollment	Total First Semester Freshmen	Graduated or Enrolled in 8th Semester with:		Graduat'n-Retention Rate	Rate of Return After Withdrawal	Graduated, Community College*		Graduated, Senior College[2]	
		Continuous Attendance	Interrupted Attendance			N	%	N	%
	(a)	(b)	(c)	(b)+(c)/(a)	(c)/(a)-(b)	(d)	(d)/(a)	(e)	(e)/(a)
SENIOR									
H.S. Average									
80+	10,315	6,084	841	67.1	19.9	28	0.3	3,244	31.4
75-79	4,454	1,850	439	51.4	16.9	24	0.5	644	14.5
70-74	2,504	787	266	42.0	15.5	9	0.4	191	7.6
Below 70	1,664	415	185	36.1	14.8	6	0.4	48	2.9
Unknown	817	274	86	44.1	15.8	1	0.1	109	13.3
SC TOTAL	19,754	9,410	1,817	56.8	17.6	68	0.3	4,236	21.4
COMMUNITY									
H.S. Average									
80+	1,376	589	120	51.5	15.2	533	38.7	72	5.2
75-79	2,914	1,026	264	44.3	14.0	886	30.4	117	4.0
70-74	4,268	1,276	424	39.8	14.2	1,010	23.7	117	2.7
Below 70	4,253	902	429	31.3	12.8	654	15.4	65	1.5
Unknown	1,751	267	318	33.4	21.4	286	16.3	48	2.7
CC TOTAL	14,562	4,060	1,555	38.6	14.8	3,369	23.1	419	2.9
CUNY TOTAL	34,316	13,470	3,372	49.1	16.2	3,437	10.0	4,655	13.6

*Of students starting at a community college, the number graduating from both a community and senior college was 269. These students are included under both CC and SC graduates.

All other footnotes for this table appear at the end of the report.

Table 3: Eight Semester Graduation and Retention by Sex and High School Average[1]
Fall 1970 Senior College Freshmen

College of Original Enrollment	Total First Semester Freshmen [3]	Graduated or Enrolled in 8th Semester with: Continuous Attendance	Graduated or Enrolled in 8th Semester with: Interrupted Attendance	Graduat'n-Retention Rate	Rate of Return After Withdrawal	Graduated, Community College N	Graduated, Community College %	Graduated, Senior College [2] N	Graduated, Senior College [2] %
	(a)	(b)	(c)	(b)+(c)/(a)	(c)/(a)-(b)	(d)	(d)/(a)	(e)	(e)/(a)
SC FEMALES									
H.S. Average									
80 +	5,289	3,114	366	65.8	16.8	19	0.4	2,060	39.0
75-79	1,842	826	162	53.6	15.9	13	0.7	374	20.3
70-74	965	342	105	46.3	16.8	5	0.5	103	10.7
Below 70	573	167	73	41.9	18.0	2	0.4	22	3.8
Unknown	170	73	20	54.7	20.6	0	0.0	32	18.8
SC FEMALE TOTAL	8,839	4,522	726	59.4	16.8	39	0.4	2,591	29.3
SC MALES									
H.S. Average									
80 +	4,824	2,940	418	69.6	22.2	8	0.2	1,150	23.8
75-79	2,471	1,003	242	50.4	16.5	10	0.4	260	10.5
70-74	1,389	417	136	39.8	14.0	4	0.3	74	5.3
Below 70	935	224	99	34.6	13.9	4	0.4	24	2.6
Unknown	225	77	21	43.6	14.2	0	0.0	23	10.2
SC MALE TOTAL	9,844	4,661	916	56.6	17.7	26	0.3	1,531	15.6
SC TOTAL	18,683	9,183	1,642	57.9	17.3	65	0.4	4,122	22.1

All footnotes for this table appear at the end of the report.

Table 4: Eight Semester Graduation and Retention by Sex and High School Average[1], Fall 1970 Community College Freshmen

College of Original Enrollment	Total First Semester Freshmen[3]	Graduated or Enrolled in 8th Semester with: Continuous Attendance	Graduated or Enrolled in 8th Semester with: Interrupted Attendance	Graduat'n-Retention Rate	Rate of Return After Withdrawal	Graduated, Community College* N	Graduated, Community College* %	Graduated, Senior College[2] N	Graduated, Senior College[2] %
	(a)	(b)	(c)	(b)+(c)/(a)	(c)/(a)-(b)	(d)	(d)/(a)	(e)	(e)/(a)
CC FEMALES									
H.S. Average									
80 +	996	480	71	55.3	13.8	433	43.5	62	6.2
75-79	1,613	647	124	47.8	12.8	584	36.2	85	5.3
70-74	1,885	644	156	42.4	12.6	536	28.4	69	3.7
Below 70	1,499	411	152	37.6	14.0	288	19.2	33	2.2
Unknown	337	51	55	31.4	19.2	45	13.4	3	0.9
CC FEMALE TOTAL	6,330	2,233	558	44.1	13.6	1,886	29.8	252	4.0
CC MALES									
H.S. Average									
80 +	311	109	34	46.0	16.8	91	29.3	9	2.9
75-79	1,179	378	102	40.7	12.7	282	23.9	27	2.3
70-74	2,212	630	221	38.5	14.0	451	20.4	48	2.2
Below 70	2,576	490	236	28.2	11.3	347	13.5	28	1.1
Unknown	421	75	38	26.8	11.0	50	11.9	10	2.4
CC MALE TOTAL	6,699	1,682	631	34.5	12.6	1,221	18.2	122	1.8
CC TOTAL	13,029	3,915	1,189	39.2	13.0	3,107	23.8	374	2.9

*Of students starting at a community college, the number graduating from both a community and senior college was 247 -- 173 females and 74 males. These students are included under both CC and SC graduates.

All other footnotes for this table appear at the end of the report.

Table 5: Eight Semester Graduation and Retention by Race-Ethnicity of Residential Area[4], Fall 1970 Freshmen

College of Original Enrollment	Total First Semester Freshmen[3]	Graduated or Enrolled in 8th Semester with:		Graduat'n-Retention Rate	Rate of Return After Withdrawal	Graduated, Community College*		Graduated, Senior College[2]	
		Continuous Attendance	Interrupted Attendance			N	%	N	%
Race-Ethnicity of Residential Area	(a)	(b)	(c)	(b)+(c)/(a)	(c)/(a)-(b)	(d)	(d)/(a)	(e)	(e)/(
SENIOR									
Predom. Black	736	266	84	47.6	17.9	0	0.0	60	8.2
Mostly Black	1,442	565	153	49.8	17.4	7	0.5	164	11.4
Puerto Rican	1,428	513	134	45.3	14.6	3	0.2	163	11.4
Mostly White	2,226	1,045	221	56.9	18.7	9	0.4	435	19.5
Predom. White	11,397	6,217	937	62.8	18.1	44	0.4	3,025	26.5
SC TOTAL	17,229	8,606	1,529	58.8	17.7	63	0.4	3,847	22.3
COMMUNITY									
Predom. Black	657	178	65	37.0	13.6	122	18.6	8	1.2
Mostly Black	1,050	304	98	38.3	13.1	235	22.4	10	1.0
Puerto Rican	946	243	81	34.2	11.5	189	20.0	13	1.4
Mostly White	1,535	411	139	35.8	12.4	335	21.8	26	1.7
Predom. White	7,288	2,481	593	42.2	12.3	1,993	27.4	275	3.8
CC TOTAL	11,476	3,617	976	40.0	12.4	2,874	25.0	332	2.9
CUNY TOTAL	28,705	12,223	2,505	51.3	15.2	2,937	10.2	4,179	14.6

*Of students starting at a community college, the number graduating from both a community and senior college was 233. These students are included under both CC and SC graduates.

All other footnotes for this table appear at the end of the report.

Table 6: Eight Semester Graduation and Retention by Median Family Income of Residential Area[4], Fall 1970 Freshmen

College of Original Enrollment	Total First Semester Freshmen[3]	Graduated or Enrolled in 8th Semester with:		Graduat'n-Retention Rate	Rate of Return After Withdrawal	Graduated, Community College*		Graduated, Senior College[2]	
		Continuous Attendance	Interrupted Attendance			N	%	N	%
Mdn. Family Income of Residential Area	(a)	(b)	(c)	(b)+(c)/(a)	(c)/(a)-(b)	(d)	(d)/(a)	(e)	(e)/(a
SENIOR									
Below $6,000	927	315	92	43.9	15.0	1	0.1	82	8.8
$6,000-$7,999	3,239	1,292	315	49.6	16.2	10	0.3	424	13.1
$8,000-$9,999	2,813	1,357	276	58.0	19.0	12	0.4	611	21.7
$10,000-$11,999	6,440	3,477	537	62.3	18.1	23	0.4	1,691	26.3
$12,000-$14,999	3,043	1,753	259	66.1	20.1	15	0.5	853	28.0
$15,000 +	767	412	50	60.2	14.1	2	0.3	186	24.2
SC TOTAL	17,229	8,606	1,529	58.8	17.7	63	0.4	3,847	22.3
COMMUNITY									
Below $6,000	650	180	53	35.8	11.3	128	19.7	10	1.5
$6,000-$7,999	2,241	623	182	35.9	11.2	479	21.4	26	1.2
$8,000-$9,999	1,860	575	187	41.0	14.6	466	25.0	52	2.8
$10,000-$11,999	4,154	1,352	347	40.9	12.4	1,103	26.6	131	3.2
$12,000-$14,999	2,093	708	166	41.8	12.0	556	26.6	95	4.5
$15,000 +	478	179	41	46.0	13.7	142	29.7	18	3.8
CC TOTAL	11,476	3,617	976	40.0	12.4	2,874	25.0	332	2.9
CUNY TOTAL	28,705	12,223	2,505	51.3	15.2	2,937	10.2	4,179	14.6

*Of students starting at a community college, the number graduating from both a community and senior college was 233. These students are included under both CC and SC graduates.

All other footnotes for this table appear at the end of the report.

Table 7: Eight Semester Graduation and Retention by High School Classification[5], Fall 1970 Freshmen

College of Original Enrollment	Total First Semester Freshman[3]	Graduated or Enrolled in 8th Semester with: Continuous Attendance	Interrupted Attendance	Graduat'n-Retention Rate	Rate of Return After Withdrawal	Graduated, Community College* N	%	Graduated, Senior College N	
	(a)	(b)	(c)	(b)+(c)/(a)	(c)/(a)-(b)	(d)	(d)/(a)	(e)	(e
SENIOR									
NYC Public H.S.									
Group I	4,656	2,707	389	66.5	20.0	16	0.3	1,230	
Group II	4,365	2,293	368	61.0	17.8	15	0.3	984	
Group III	2,881	1,133	282	49.1	16.1	13	0.4	380	
Group IV	756	170	89	34.2	15.2	2	0.3	33	
NYC Nonpublic H.S.	4,746	2,318	377	56.8	15.5	16	0.3	1,195	
SC TOTAL	17,404	8,621	1,505	58.2	17.1	62	0.4	3,822	
COMMUNITY									
NYC Public H.S.									
Group I	2,696	972	207	43.7	12.0	767	28.5	85	
Group II	2,969	896	240	38.3	11.6	678	22.8	91	
Group III	2,265	623	197	36.2	12.0	453	20.0	37	
Group IV	1,037	203	84	27.7	10.1	154	14.9	3	
NYC Nonpublic H.S.	2,865	939	250	41.5	13.0	771	26.9	120	
CC TOTAL	11,832	3,633	978	39.0	11.9	2,823	23.9	336	
CUNY TOTAL	29,236	12,254	2,483	50.4	14.6	2,885	9.9	4,158	

*Of students starting at a community college, the number graduating from both a community and senior college was 23
These students are included under both SC and CC graduates.

All other footnotes for this table appear at the end of the report.

Table 8: Two Semester Retention by High School Average[1], Fall 1970, Fall 1971, Fall 1972, and Fall 1973 Senior College Freshmen

College of Original Enrollment	Total First Semester Freshmen	Graduated or Enrolled in 2nd Semester with: Continuous Attendance	Graduated or Enrolled in 2nd Semester with: Interrupted Attendance	Graduat'n-Retention Rate	Rate of Return After Withdrawal	Graduated, Community College N	Graduated, Community College %	Graduated, Senior College N	Graduated, Senior College %
SENIOR	(a)	(b)	(c)	(b)+(c)/(a)	(c)/(a)-(b)	(d)	(d)/(a)	(e)	(e)/(a)
FALL 1970 COHORT									
H.S Average									
80 +	10,315	9,526	--	92.4	--				
75-79	4,454	3,870	--	86.9	--				
70-74	2,504	2,110	--	84.3	--				
Below 70	1,664	1,357	--	81.6	--				
Unknown	817	675	--	82.6	--				
TOTAL	19,754	17,538	--	88.8	--				
FALL 1971 COHORT									
H.S. Average									
80 +	10,000	9,206	--	92.1	--				
75-79	4,433	3,843	--	86.7	--				
70-74	2,592	2,203	--	85.0	--				
Below 70	1,445	1,159	--	80.2	--				
Unknown	536	403	--	75.2	--				
TOTAL	19,006	16,814	--	88.5	--				

Table 8 : Continued

College of Original Enrollment	Total First Semester Freshmen	Graduated or Enrolled in 2nd Semester with: Continuous Attendance	Graduated or Enrolled in 2nd Semester with: Interrupted Attendance	Graduat'n-Retention Rate	Rate of Return After Withdrawal	Graduated, Community College N	Graduated, Community College %	Graduated, Senior College N	Graduated, Senior College %
SENIOR	(a)	(b)	(c)	(b)+(c)/(a)	(c)/(a)-(b)	(d)	(d)/(a)	(e)	(e)/(a)
FALL 1972 COHORT									
H.S Average									
80 +	9,437	8,631	--	91.5	--				
75-79	4,504	3,845	--	85.4	--				
70-74	2,819	2,338	--	82.9	--				
Below 70	1,734	1,435	--	82.8	--				
Unknown	1,281	1,048	--	81.8	--				
TOTAL	19,775	17,297	--	87.5	--				
FALL 1973 COHORT									
H.S. Average									
80 +	8,709	7,881	--	90.5	--				
75-79	4,185	3,580	--	85.5	--				
70-74	2,586	2,159	--	83.5	--				
Below 70	2,582	2,053	--	79.5	--				
Unknown	1,367	1,104	--	80.8	--				
TOTAL	19,429	16,777	--	86.4	--				

All footnotes for this table appear at the end of the report.

Table 9 : Two Semester Retention by High School Average[1], Fall 1970, Fall 1971, Fall 1972, and Fall 1973 Community College Freshmen

College of Original Enrollment	Total First Semester Freshmen	Graduated or Enrolled in 2nd Semester with: Continuous Attendance	Interrupted Attendance	Graduat'n-Retention Rate	Rate of Return After Withdrawal	Graduated, Community College N	%	Graduated, Senior College N	%
COMMUNITY	(a)	(b)	(c)	(b)+(c)/(a)	(c)/(a)-(b)	(d)	(d)/(a)	(e)	(e)/(a)
FALL 1970 COHORT									
H.S Average									
80 +	1,376	1,105	--	80.3	--				
75-79	2,914	2,317	--	79.5	--				
70-74	4,268	3,298	--	77.3	--				
Below 70	4,253	3,171	--	74.6	--				
Unknown	1,751	916	--	52.3	--				
TOTAL	14,562	10,807	--	74.2	--				
FALL 1971 COHORT									
H.S. Average									
80 +	1,590	1,325	--	83.3	--				
75-79	3,281	2,703	--	82.4	--				
70-74	4,659	3,697	--	79.4	--				
Below 70	5,169	3,933	--	76.1	--				
Unknown	1,936	1,426	--	73.7	--				
TOTAL	16,635	13,084	--	78.6	--				

Table 9: Continued

College of Original Enrollment	Total First Semester Freshmen	Graduated or Enrolled in 2nd Semester with: Continuous Attendance	Interrupted Attendance	Graduat'n-Retention Rate	Rate of Return After Withdrawal	Graduated, Community College N	%	Graduated, Senior College N	%
COMMUNITY	(a)	(b)	(c)	(b)+(c)/(a)	(c)/(a)-(b)	(d)	(d)/(a)	(e)	(e).
FALL 1972 COHORT									
H.S. Average									
80 +	1,856	1,612	--	86.8	--				
75-79	2,962	2,489	--	84.0	--				
70-74	4,210	3,377	--	80.2	--				
Below 70	5,023	3,933	--	78.3	--				
Unknown	2,849	2,181	--	76.6	--				
TOTAL	16,900	13,592	--	80.4	--				
FALL 1973 COHORT									
H.S. Average									
80 +	2,177	1,893	--	87.0	--				
75-79	3,047	2,535	--	83.2	--				
70-74	4,556	3,635	--	79.8	--				
Below 70	5,090	3,943	--	77.5	--				
Unknown	2,660	2,005	--	75.4	--				
TOTAL	17,530	14,011	--	79.9	--				

All footnotes for this table appear at the end of the report.

Table 10: Four Semester Graduation and Retention by High School Average[1]
Fall 1970, Fall 1971, and Fall 1972 Senior College Freshmen

College of Original Enrollment	Total First Semester Freshmen	Graduated or Enrolled in 4th Semester with:		Graduat'n-Retention Rate	Rate of Return After Withdrawal	Graduated, Community College		Graduated, Senior College	
		Continuous Attendance	Interrupted Attendance			N	%	N	%
SENIOR	(a)	(b)	(c)	(b)+(c)/(a)	(c)/(a)-(b)	(d)	(d)/(a)	(e)	(e)/(a
FALL 1970 COHORT									
H.S. Average									
80 +	10,315	8,087	358	81.9	16.1				
75-79	4,454	2,989	235	72.4	16.0				
70-74	2,504	1,505	164	66.6	16.4				
Below 70	1,664	923	112	62.2	15.1				
Unknown	817	477	61	65.8	17.9				
TOTAL	19,754	13,981	930	75.5	16.1				
FALL 1971 COHORT									
H.S. Average									
80 +	10,000	7,702	277	79.8	12.0				
75-79	4,433	2,833	193	68.3	12.1				
70-74	2,592	1,505	147	63.7	13.5				
Below 70	1,445	789	111	62.3	16.9				
Unknown	536	273	52	60.6	19.8				
TOTAL	19,006	13,102	780	73.0	13.2				
FALL 1972 COHORT									
H.S. Average									
80 +	9,437	7,189	234	78.7	10.4				
75-79	4,504	2,804	182	66.3	10.7				
70-74	2,819	1,565	126	60.0	10.0				
Below 70	1,734	922	79	57.7	9.7				
Unknown	1,281	689	48	57.5	8.1				
TOTAL	19,775	13,169	669	70.0	10.1				

All footnotes for this table appear at the end of the report.

Table 11: Four Semester Graduation and Retention by High School Average[1], Fall 1970, Fall 1971, and Fall 1972 Community College Freshmen

College of Original Enrollment	Total First Semester Freshmen	Graduated or Enrolled in 4th Semester with:		Graduat'n-Retention Rate	Rate of Return After Withdrawal	Graduated, Community College		Graduated, Senior College	
		Continuous Attendance	Interrupted Attendance			N	%	N	%
COMMUNITY	(a)	(b)	(c)	(b)+(c)/(a)	(c)/(a)-(b)	(d)	(d)/(a)	(e)	(e)/(
FALL 1970 COHORT									
H.S. Average									
80 +	1,376	827	95	67.0	17.3	284	20.6		
75-79	2,914	1,696	217	65.6	17.8	355	12.2		
70-74	4,268	2,256	326	60.5	16.2	246	5.8		
Below 70	4,253	2,020	358	55.9	16.0	136	3.2		
Unknown	1,751	569	445	57.9	37.6	76	4.3		
TOTAL	14,562	7,368	1,441	60.5	20.0	1,097	7.5		
FALL 1971 COHORT									
H.S Average									
80 +	1,590	1,027	53	67.9	9.4	254	16.0		
75-79	3,281	1,947	143	63.7	10.7	351	10.7		
70-74	4,659	2,504	219	58.4	10.2	284	6.1		
Below 70	5,169	2,427	299	52.7	10.9	171	3.3		
Unknown	1,936	939	195	58.6	19.6	179	9.2		
TOTAL	16,635	8,844	909	58.6	11.7	1,239	7.4		
FALL 1972 COHORT									
H.S. Average									
80 +	1,856	1,243	52	69.8	8.5	298	16.1		
75-79	2,962	1,779	113	63.9	9.6	231	7.8		
70-74	4,210	2,284	161	58.1	8.4	213	5.1		
Below 70	5,023	2,415	257	53.2	9.8	131	2.6		
Unknown	2,849	1,415	172	55.7	12.0	160	5.6		
TOTAL	16,900	9,136	755	58.5	9.7	1,033	6.1		

All footnotes for this table appear at the end of the report.

Table 12: Six Semester Graduation and Retention by High School Average[1], Fall 1970 and Fall 1971 Senior College Freshmen

College of Original Enrollment	Total First Semester Freshmen	Graduated or Enrolled in 6th Semester with: Continuous Attendance	Interrupted Attendance	Graduat'n-Retention Rate	Rate of Return After Withdrawal	Graduated, Community College N	%	Graduated, Senior College N	%
SENIOR	(a)	(b)	(c)	(b)+(c)/(a)	(c)/(a)-(b)	(d)	(d)/(a)	(e)	(e)/(a
FALL 1970 COHORT									
H.S. Average									
80 +	10,315	6,917	681	73.7	20.0				
75-79	4,454	2,284	408	60.4	18.8				
70-74	2,504	1,071	248	52.7	17.3				
Below 70	1,664	606	157	45.8	14.8				
Unknown	817	358	87	54.5	19.0				
TOTAL	19,754	11,236	1,581	64.9	18.6				
FALL 1971 COHORT									
H.S. Average									
80 +	10,000	6,371	550	69.2	15.2				
75-79	4,433	2,041	377	54.6	15.8				
70-74	2,592	996	195	46.0	12.2				
Below 70	1,445	452	165	42.7	16.6				
Unknown	536	174	59	43.5	16.3				
TOTAL	19,006	10,034	1,346	59.9	15.0				

All footnotes for this table appear at the end of the report.

Table 13: Six Semester Graduation and Retention by High School Average[1], Fall 1970 and Fall 1971 Community College Freshmen

College of Original Enrollment COMMUNITY	Total First Semester Freshmen (a)	Graduated or Enrolled in 6th Semester with: Continuous Attendance (b)	Graduated or Enrolled in 6th Semester with: Interrupted Attendance (c)	Graduat'n-Retention Rate (b)+(c)/(a)	Rate of Return After Withdrawal (c)/(a)-(b)	Graduated, Community College N (d)	Graduated, Community College % (d)/(a)	Graduated, Senior College N (e)	Graduated, Senior College % (e)/(a)
FALL 1970 COHORT									
H.S. Average									
80 +	1,376	652	107	55.2	14.8	494	35.9		
75-79	2,914	1,218	260	50.7	15.3	814	27.9		
70-74	4,268	1,586	394	46.4	14.7	847	19.8		
Below 70	4,253	1,246	434	39.5	14.4	524	12.3		
Unknown	1,751	352	355	40.4	25.4	232	13.2		
TOTAL	14,562	5,054	1,550	45.4	16.3	2,911	20.0		
FALL 1971 COHORT									
H.S Average									
80 +	1,590	782	101	55.5	12.5	556	35.0		
75-79	3,281	1,411	226	49.9	12.1	924	28.2		
70-74	4,659	1,695	352	43.9	11.9	898	19.3		
Below 70	5,169	1,456	439	36.7	11.8	616	11.9		
Unknown	1,936	663	232	46.2	18.2	396	20.4		
TOTAL	16,635	6,007	1,350	44.2	12.7	3,390	20.4		

All footnotes for this table appear at the end of the report.

Table 14: Comparative Graduation Rates After Four Years: Fall 1960 and Fall 1970 Freshmen at Brooklyn, Queens, Hunter, and City Colleges

Fall 1960 Freshmen (Total)*	Brooklyn	Queens	Hunter	City	Total
Number enrolled	1,771	1,475	2,052	2,550	7,848
Number graduated by Spr. 1964	1,042	802	1,012	895	3,751
Percent	58.8	54.4	49.3	35.1	47.8
Fall 1970 Freshmen (Total)					
Number enrolled	4,362	3,458	3,091	3,093	14,004
Number graduated by Spr. 1974	1,219	898	644	461	3,222
Percent	28.0	26.0	20.8	14.9	23.0
Fall 1970 Freshmen (HSA 80 & Above)					
Number enrolled	2,875	2,597	1,772	1,492	8,736
Number graduated by Spr. 1974	1,033	821	538	323	2,715
Percent	35.9	31.6	30.4	21.6	31.1
Fall 1970 Freshmen (HSA 85 & Above)					
Number enrolled	1,751	1,453	786	712	4,702
Number graduated by Spr. 1974	730	558	290	206	1,784
Percent	41.7	38.4	36.9	28.9	37.9

*Source: Pearl Max, How Many Graduate. CUNY, November 1968.

Table 15: Senior College Graduation and Retention After Four Years: Comparison of National Sample* (Fall 1966 Freshmen) and CUNY Cohort (Fall 1970 Freshmen)

High School Average	Number of Students National Actual	Number of Students National Weighted	Number of Students CUNY	Received Bachelor's Degree National**	Received Bachelor's Degree CUNY	Received Degree or Still Enrolled National**	Received Degree or Still Enrolled CUNY***
80+	3,069	239,280	10,315	49.1%	31.4%	58.5%	66.8%
75-79	461	50,629	4,454	26.5	14.5	39.8	50.9
70-74	284	36,783	2,504	14.3	7.6	29.2	41.6

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* In the lowest high school average category (those with averages of less than 70) the actual number of students in the national sample (N=10) is too small to be a reliable comparison group for CUNY where the number in this category is 1,664.

** Based on weighted data for public four year colleges (Source: Alexander W. Astin, personal communication).

*** CUNY data differ slightly from those in Table 1; omitted are 68 senior college freshmen who graduated from community colleges.

Table 16 : Community College Graduation and Retention After Four Years: Comparison of National Sample* (Fall 1966 Freshmen) and CUNY Cohort (Fall 1970 Freshmen)

High School Average	Number of Students National Actual	Number of Students National Weighted	Number of Students CUNY	Received Associate's Degree National**	Received Associate's Degree CUNY	Received Degree or Still Enrolled National**	Received Degree or Still Enrolled CUNY***
80+	770	119,529	1,376	34.8%	38.7%	36.8%	49.7%
75-79	373	67,195	2,914	27.4	30.4	29.9	42.8
70-74	348	65,160	4,268	20.4	23.7	23.1	36.0

* In the lowest high school average category (those with averages of less than 70) the actual number of students in the national sample (N=19) is too small to be a reliable comparison group for CUNY where the number in this category is 4,253.

** Based on weighted data for public two year colleges (Source: Alexander W. Astin, personal communication).

*** CUNY data differ slightly from those in Table 1; omitted are 150 community college freshmen who graduated from senior colleges without receiving the community college degree.

TABLE FOOTNOTES

1. High school average refers to the University's college admissions average. This is computed from grades in the following academic subjects: English, mathematics, science, foreign languages, social science.

2. Data currently available do not enable us to identify the relatively small number of students graduating with the Associate's rather than the Bachelor's degree from the senior college.

3. The numbers of first semester freshmen in this table do not equal the numbers in Table I because of missing or incomplete data.

4. Using 1970 census data tapes provided by the City Planning Commission, the OPPR classified NYC ZIP areas according to the race-ethnicity and median family income of residents.

5. This classification was developed for NYC public academic and vocational schools only; it is based on the average school score on the State Regents Scholarship Examination. Group I schools had the highest average score; those in Group IV had the lowest average score.

- ATTENDANCE -
NEAIR ANNUAL MEETING, NEW HAVEN, CONNECTICUT
NOVEMBER 6, 7, 8, 1975

Alfred, Richard L.	New York City Community College, Brooklyn, N.Y.
Anderson, Roger C.	Allegheny Community College, Cumberland, Md.
Angelo, Priscilla J.	University of Massachusetts, Amherst, Mass.
Barnes, Rosemary L.	College of Mt. St. Vincent, Riverdale, N.Y.
Beals, Ernest W.	College Entrance Examination Board, Waltham, Mass.
Beatty, George, Jr.	University of Massachusetts, Amherst, Mass.
Becklin, Karen M.	Richard Stockton State College, Pomona, N.J.
Belonis, Susan M.	University of Massachusetts, Amherst, Mass.
Benedict, Larry G.	University of Massachusetts, Amherst, Mass.
Berger, James C.	Fairleigh Dickinson University, Teaneck, N.J.
Blai, Boris, Jr.	Harcum Junior College, Bryn Mawr, Pa.
Broad, Molly C.	Syracuse University, Syracuse, N.Y.
Brown, Eric	Brown University, Providence, R.I.
Burrell, William	Salve Regina College, New Port, R.I.
Carolan, Kevin J.	Marist College, Poughkeepsie, N.Y.
Coons, Edgar, Jr.	New York University, N.Y.
Dresch, Stephen	Yale University, New Haven, Conn.
Elkin, Paul	University of Massachusetts, Amherst, Mass.
Elwell, Albert	University System of New Hampshire, Durham, N.H.
Evans, Hiram J.	Curry College, Milton, Mass.
Faricy, William H.	Montclair State College, Upper Montclair, N.J.
Garcia, Juan	University of Massachusetts, Amherst, Mass.
Gould, Loren	Worcester State College, Worcester, Mass.
Grose, Robert F.	Amherst College, Amherst, Mass.

Hackman, Judith	Yale University, New Haven, Conn.
Harris, Maryilyn	CUNY Brooklyn College, New York, N.Y.
Hastings, Janice	Keene State College, Keene, N.H.
Heck, Richard C.	Colgate University, Hamilton, N.Y.
Henderson, Andrew	CUNY Medgar Evers College, Brooklyn, N.Y.
Hoskins, John H.	Yale University, New Haven, Conn.
Kaufman, Barry	City University of New York, New York, N.Y.
Kegan, Daniel	Hampshire College, Amherst, Mass.
Kogan, Meryl	University of Connecticut, Storrs, Conn.
Lenn, Marjorie	University of Massachusetts, Amherst, Mass.
Lewis, Robert T.	University of Massachusetts, Amherst, Mass.
Lloyd, Henry	University of Connecticut, Storrs, Conn.
Lundberg, David W.	Fairleigh Dickinson University, Teaneck, N.J.
Malinowski, Shirley	University of Connecticut, Storrs, Conn.
Mayfield, Clifton, C.	Southern Connecticut State College, New Haven, Conn.
Menkhaus, Jerome P.	St. Peters College, Jersey City, N.J.
McDonald, W. Scott	Drew University, Madison, N.J.
McGovern, James J.	Connecticut Commission for Higher Education, Hartford, Conn.
McLaughlin, Althea	University of Connecticut, Storrs, Conn.
Napier, Gordon	University of Rhode Island, Kingston, R.I.
Neidlein, Karl	Rutgers University, New Brunswick, N.J.
Park, Eldon	Educational Testing Service, Princeton, N.J.
Peterson, Bruce	Richard Stockton State College, Pomona, N.J.
Phillips, Samuel	Syracuse, University, Syracuse, N.Y.
Podell, Lawrence	City University of New York, New York, N.Y.
Russo, Robert C.	Fairfield University, Fairfield, Conn.

Sacay, Valerie	CUNY Brooklyn College, Brooklyn, N.Y.
Sister Rita Arthur	Marymouth Manhattan College, New York, N.Y.
Sister Maria Louise Hubert	Albertus Magnus College, New Haven, Conn.
Sister Ann C. Luciano	University of Massachusetts, Amherst, Mass.
Stack, Bernard J.	Seton Hall University, South Orange, N.J.
Stein, Eugene	State Island Community College, Staten Island, N.Y.
Suttle, J. Lloyd	Yale University, New Haven, Conn.
Terenzini, Patrick T.	Syracuse University, Syracuse, N.Y.
Torrence, Lois	University of Connecticut, Storrs, Conn.
Watkins, Carole	University of Massachusetts, Amherst, Mass.
Wyant, Helen	SUNY, Buffalo, New York